paving, fencing, hydroseeding did not Happen

151361

ACTION MEMORANDUM

DATE:

SUBJECT: Request for a Removal Action at the Comell-Dubilier Electronics Site, South Plainfield, Middlesex County, New Jersey

FROM: Eric J. Wilson, On-Scene Coordinator
Removal Action Branch

TO: Richard L. Caspe, Director
Emergency and Remedial Response Division

THRU: Richard C. Salkie, Chief
Removal Action Branch

Site ID #: GZ

I. PURPOSE

The purpose of this Action Memorandum is to request and document approval of the proposed removal action described herein for the Comell-Dubilier Electronics Site (Site), located at 333 Hamilton Boulevard, Middlesex County, New Jersey 07080. The proposed project ceiling is $244,000, of which $167,000 is for mitigating contracting.

The Site is not on the National Priorities List (NPL). There are no nationally significant or precedent-setting issues associated with the proposed response.

CONCURRENCES

Name: Comell-Dubilier Init: sb Date: 05/01/97 Filename: A.M.#0124

Symbol	ERRD-RAB	ERRD-RAB	ERRD-RAB	ORC-NJSUP	ORC-NJSUP	ERRD-DD	ERRD-D	
Surname	Wilson	Rotkow	Salkie	Sundram	Karlen	McCabe	Caspe	
Date	5/2/97	5/2/97	5/2/97					

II. SITE CONDITIONS AND BACKGROUND

The Comprehensive Environmental Response Compensation, and Liability Information System ID Number for the Site is NJD981557879.

A. Site Description

1. Removal site evaluation

Comell-Dubiher Electronics operated at the Site from 1936 to 1962 manufacturing electronic parts and components, including capacitors. It is reported that Comell-Dubilier tested transformer oils for an unknown period of time and that polychlorinated biphenyl (PCB) contaminated materials and other hazardous substances were deposited directly onto site soils.

EPA pre-remedial contractor (Malcolm Pimie, Inc.) conducted sampling at the Site in June 1994, October 1994 and February 1996 for a Site Inspection Prioritization. An observed release of PCBs to surface water was documented during these sampling events. Elevated concentrations of volatile organic compounds, semi-volatile organic compounds, PCBs and inorganic constituents were found in site soils. PCBs were also detected in surface waters and sediment of the Bound Brook downstream of the Site at concentrations above background.

In response to a referal from EPA Monitoring and Assessment Branch (see Appendix A), a Removal Site Evaluation (RSE) was conducted by the U.S. Environmental Protection Agency (EPA) Removal Action Branch betwean March 1996 and January 1997. Contamination of site soils and surface waters and sediments of the Bound Brook was confirmed during the RSE. Based on the findings of the RSE the Site was determined to be eligable for a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) removal action.

The Site was referred to EPA for removal action consideration by the New Jersey Department of Environmental Protection on April 2, 1997 (See Appendix A).

2. Physical location

The Comell-Dubilier Electronics Site is located at 333 Hamilton Boulevard in South Plainfield, Middlesex County, New Jersey. The Site occupies approximately 25 acres in a mixed industrial/commercial/residential area and is bordered by commercial businesses, residences, wetlands and the Bound Brook. Conrail railroad tracks cross the Bound Brook just north of the Site. Other industries are located to the northeast and east of the Site on the opposite side of the Conrail tracks. A Site location map is included as Figure 1, Appendix B.

Residential homes are located on Spicer Avenue and on Hamihon Boulevard within 100 feet of the Site. It is estimated that 540 persons reside within 0.25 miles of the Site. The total population estimated to live within one mile of the Site is 8,700 persons.

The Bound Brook borders the Site on the east. The section of the stream that borders the Site varies in width from ten to twenty feet and in depth from one to three feet. Two miles downstream of the Site the Bound Brook flows into New Market Pond. Drainage from New Market Pond flows approximately 8.5 miles before discharging into the Raritan River. The above referenced water bodies are designated by the State of New Jersey for the maintenance, migration and propagation of the natural and established biota. There are no surface water intakes along this flow path for at least 15 miles. These water bodies are utilized as freshwater fisheries.

There are approximately 34 acres of wetlands within 0.5 miles of the Site. Wetlands that border the Site to the southeast diminish significantly as the creek heads downstream towards the northwest.

Groundwater is a source of drinking water within a four-mile radius of the Site. The majority of people within this radius are served drinking water from either the Middlesex Water Company (MWC) or the Elizabethtown Water Company (EWC), both of which utilize supply wells within four miles of the Site. The supply wells are blended with surface water, mainly from the Raritan River and the Delaware-Raritan Canal, which are reportedly not located in the surface water flow path from the Site. Surface water makes up 73-85% of the total system flow for both MWC and EWC.

Based on data from January 1994, the nearest municipal drinking water well was reported to be located 0.6 miles north and down gradient of the Site. Drinking water wells within four miles of the Site, of which there were an estimated 93 operating in 1994, served an aggregate population of 80,299 persons within a four-mile radius of the Site. Most of these wells appear to be ehher down gradient or cross gradient of the Site. It is estimated that 11,077 persons are served by wells located within 0.5 miles to one mile.

An unknown source investigation, conducted by the New Jersey Department of Environmental Protection (NJDEP) in the vicinity of Hamilton Boulevard during the period of 1988-1991, revealed significant groundwater contamination consisting mainly of trichloroethene (TCE) and tetrachloroethene (PCE). Samples collected from a shallow (70 feet) residential potable well located approximately 500 feet west of the Site revealed TCE (6,850 ug/l) and PCE (12.6 ug/l) contamination. Due to widespread contamination, all residential wells in the area were reportedly closed and residences were connected to an alternate water supply. Although the Site was considered to be one of several potential sources, to date, the source of the contamination has not been identified.

3. Site characteristics

During its years of operation at the Site (1936 to 1962), Comell-Dubilier Electronics, Inc. manufactured electronic parts and components, including capacitors. In addition, it is reported that Comell-Dubilier Electronics, Inc. tested transformer oils for an unknown period of time until they vacated the Site. It is alleged that during their operations, Comell-Dubilier Electronics, Inc. dumped PCB-contaminated materials and other hazardous substances directly onto site soils.

The Site is currently known as the Hamilton Industrial Park and is occupied by 15 businesses. The owner of the property is DSC Enterprises of Newark, Inc. Through the years, dozens of companies have operated at the Site as tenants.

The first 100 yards of the roadway into the industrial park is paved. The remainder of the roadway is unpaved and is made up of dirt, gravel and stone. Dust is generated by vehicles using the Site roadway during dry conditions. The roadway nearly encircles the structures at the Site, and in turn, separates the structures from a vacant field. The southeastern portion of the vacant field is fenced and secured. A fence is also present along a portion of the edge of the Site bordering the stream.

The fenced area, which covers an area approximately 1.5 acres in size, was the location of a truck driving school during the period of February 1996 to early October 1996. During the school's operation, tractor trailers maneuvered in the fenced area generally six days per week, eight hours per day. Trucks also left the fenced area and the Site via the roadway for road tests. The school's temporary operating permit was revoked by the local zoning board in early October due to the discovery of elevated levels of PCBs in the surface soil. The fenced area was subsequently leased to a trucking firm. The trucking firm ceased use of the fenced area in April 1997 as a result of actions taken by the local zoning board.

The composition of the ground surface within the fenced area varies throughout. It generally consists of a compacted mixture of soil, rock and crushed brick. Some paving of this area occurred in early 1997. Dust was generated by vehicles driving over unpaved areas of the fenced field during dry conditions.

The ground surface in the vicinity of the northeast corner of the fenced area is strewn with electrical and transformer parts, some embossed with the name "Cornell-Dubilier", broken glass; a material resembling ash and other small pieces of debris. A portion of this area is within a swale, which appears to carry storm water runoff from the northern and eastern portions of the fenced area into a wooded expanse between the fenced area and the adjacent stream. The debris encompasses an area of approximately 6,000 to 13,000 square feet and includes a portion of the footpath.

The remainder of the vacant field contains shrubs, high grass and other vegetative cover. The ground surface is generally hard and appears to have been compacted. Trees line the area between the field and the stream, as well as along Spicer Avenue. The topography drops off dramatically to the east and northeast, heading toward a wetland and the stream. In the area near the culvert, this sudden change in elevation appears to be at least 15 feet. Visual observations at this point reveal the face of this slope to consist entirely of fill material.

What appears to be a footpath runs from Spicer Avenue at the southwest corner of the Site, northeast along the the fenced area to the culvert over the Bound Brook in the southeast corner of the Site. The overpass consists of an abandoned railroad line previously used to service the operations at the Site. The footpath passes through an area of exposed waste.

A storm and drain sewer discharges into the unnamed tributary to the Bound Brook on the northeastern border of the Site. Although there did not appear to be a significant current in the drainage channel at the time of the first site visit, evidence of sediment buildup at the discharge to the stream is indicative of a recurring flow. A Site map is included as Figure 2, Appendix B.

The activities proposed in this Action Memorandum would be the first removal action at the Site.

4. Release or threatened release into the environment of a hazardous substance, or pollutant, or contaminant

On June 8, 1994, an EPA pre-remedial contractor collected samples from four surface water, six surface soil (zero to one foot depth) and four sediment locations (see Appendix B, Figure 3). All samples were analyzed for TCL organic compounds and TAL inorganic constituents. Table 1 presents a summary of the maximum analytical concentrations detected during this sampling event.

Table 1: Summary of Analytical Results From Soil Samples Collected at the Comell-Dubilier Electronics Site, June 8, 1994

Compound	Concentration (mg/kg)
1,2-dichloroethane	0.019E
trichloroethene	0.082E
phenanthrene	2.2
anthracene	0.380
fluoranthene	5.0
pyrene	2.9
benzb(a)anthracene	1.8
chrysene	2.3
benzb(b)fluoranthene	2.5
benzo(k)fluoranthene	1.6
benzo(a)pyrene	1.9
indeno(1,2,3-cd)pyrene	1.4
dibenz(a,h)anthracene	0.460
benzo(g,h,i)perylene	1.1
PCB aroclor-1254	1,100

Analyses	Concentration (mg/kg)
arsenic	25.7
cadmium	36.7
chromium	78.6
lead	2,200
mercury	2.9
silver	26.7

The maximum PCB and lead concentrations noted in Table 1 were collected from surface soils in the vacant field. PCB aroclor-1254 was also detected in each of the five additional soil samples collected from the Site in concentrations ranging from 6.9 mg/kg to 110 mg/kg, with the average concentration being 42.6 mg/kg. The maximum concentration (110 mg/kg) of PCBs detected from these five samples was located in the floodplain to the east of the Site.

A sediment sample collected from the stream near the rear of the property, down slope from the location where the waste material was noted on the surface, revealed the presence of PCB aroclor-1254 at 550 mg/kg. 1,2-dichloroethene (51 ug/kg), trichloroethene (120 ug/kg) and lead (552 mg/kg) were also detected in this same sediment sample. In general, the remainder of the organic compounds noted in the soil samples listed in Table 1 were also detected in the sediment samples, however, at mostly higher concentrations.

The maximum concentration of PCB aroclor-1254 detected in surface water samples was 20 ug/l. This sample was collected northeast of the Site near the storm water discharge. PCB aroclor-1248, which has not been detected in any other sample collected at the Site, was detected at this same location at 24 ug/l. 1,2-Dichloroethene and trichloroethene were detected at the same surface water location at 100 ug/l and 2 ug/l, respectively. With respect to heavy metals, the maximum values detected were: arsenic (15.6 ug/l), cadmium (14.5 ug/l), chromium (25.7 ug/l), copper (89.5 ug/l), lead (180 ug/l), mercury (0.23 ug/l), silver (3.8 ug/l) and zinc (994 ug/l).

PCBs were not detected in air samples collected by the Superfund Technical Assessment and Response Team (START) on April 23, 1996, during the period when the tmck driving school was in operation. Lead was detected in two of the samples at 7.2 ug/m^3 and 3.5 ug/m^3. It should be noted that the higher of the two lead concentrations was from the background sample 80 feet upwind of the fence perimeter.

On June 27 and 29, 1996, EPA and the START collected additional soil samples of the Site roadway, the vacant field and the footpath. The highest concentration of the PCB aroclor-1254 (51,000 mg/kg) was detected at the surface within the fenced area of the vacant field. The sample was collected near the northeastern comer of the fenced area where electrical and transformer parts lie exposed in a swale.

Aroclor 1254 was detected on the surface of the Site roadway at concentrations ranging from 8.5 mg/kg to 340 mg/kg. The average aroclor-1254 detected on the surface (zero to three inches) of the Site roadway was 87.5 mg/kg. Aroclor 1254 was detected beneath the surface of the Site roadway at concentrations ranging from non-detect to 22,000 mg/kg.

The highest concentration of lead detected in the surface of the roadway was 340 mg/kg, the average lead concentration was 167.6 mg/kg. Lead was detected beneath the surface of the roadway at concentrations ranging from 1,740 mg/kg to 7,460 mg/kg.

In general, cadmium was detected in the surface of the Site roadway at levels less than three mg/kg, with the exception of one location where it was detected at 19 mg/kg. The maximum concentration of cadmium detected beneath the surface of the Site roadway was 373 mg/kg.

Elevated levels of aroclor-1254 (90 mg/kg - 3,000 mg/kg), lead (1,740 mg/kg - 66,600 mg/kg) and cadmium (43 mg/kg - 271 mg/kg) were detected at the surface in the vicinity of the footpath at the rear portion of the Site where exposed waste is present.

A sample collected in the floodplain of the stream, down slope from the exposed waste, was found to contain 100 mg/kg of PCB aroclor-1254.

On July 18, 1996, EPA and START collected 18 samples from six test pits. Test pit location were determined based on a review of historic aerial photos of the Site. Test pits were excavated to a maximum depth of nine feet or until groundwater was encountered.

Table 3 presents a summary of the analytical results from the test pit soil samples collected by START on July 16, 1996. Figure 5 in Appendix B depicts these sample locations.

Table 2: Summary of Analytical Results From Test Pit Soil Samples Collected at the Comell-Dubilier Electronics Site, July 16, 1996

Sample Number /Denth (ft.)	Concentration (mg/kg) Aroclor-1254	Lead
TP1A/2.0	180	294
TP1B/4.5	100J	55
TP2A/2.0	150	139
TP2B/4.0	14	11
TP3A/4.0	23J	318
TP3B/9.0	4	7
TP4A/6.0	400	459
TP5A/4.0	1,900J	1,180
TP5B/9.0	4	480
TP6A/3.5*	U	1,970
TP6B/8.5	<1J	25
TP8A/3.5*	<1J	1,870

Note: except for concentrations detected at less than 1 mg/kg, all other analytical data presented above has been rounded down to the next whole number
* - duplicate sample
J - estimated value
U - non-detected analyte/compound

Groundwater was encountered in Test Pit No. 1 at just beneath 4.5 feet. The remainder of the test pits revealed some groundwater infiltration at depths ranging from seven to nine feet. A layer of stained soil was noted in Test Pit No. 1. This layer also contained an abundance of paper-thin plastic chips ranging in size from 0.5 to 1.5 inch square. These items have been noted in other areas throughout the Site, especially where staining or waste material was present. Test Pit No. 3 contained black-stained soil throughout and drum carcasses. Test Pit No. 4 contained large pieces of wood and debris as well as dmm carcasses. Test Pit No. 5 contained stained soil, dmm carcasses, electrical parts and plastic chips throughout its entire depth.

The materials listed above in Table 1 are CERCLA designated Hazardous Substances, as listed in 40 CFR Table 302.4. The above data is only a summary of the more pertinent analytical information. It is not meant to be inclusive of all of the analyses or compounds detected at the Site.

Based on the available data, it appears as though the PCB aroclor-1254 is the most prevalent and significant contaminant present at the Site. Aroclor-1254 has been detected in the facility driveway, in a vacant field, in a footpath that crosses the Site and in the sediment and surface water of the Bound Brook. Significantly elevated levels of lead and cadmium are also present at a number of sample locations. A wide range of polynuclear aromatic hydrocarbons (PAH) and low levels of several organic solvents (i.e., 1,2-dichloroethene and trichloroethene) and other heavy metals (chromium, silver, and arsenic) are also present. More specifically, the greatest concentrations of PCB aroclor-1254 have been detected within the fenced area where the tmck driving school formerly operated, in the vacant field between the fenced area and the stream, and just beneath the surface of the roadway that winds through the Site. There are also several locations at the surface of the Site roadway containing elevated levels of PCB aroclor-1254. The average PCB aroclor-1254 concentration of the surface samples collected from the roadway (87 mg/kg) is above the 50 ppm level regulated under the Toxic Substances Control Act (TSCA). Although not as consistent as the PCB contamination, elevated levels of lead and cadmium have been detected at similar locations.

The mechanism for past releases to the environment appears to have been the waste disposal practices at the Site. The contamination in the adjoining stream may have occurred due to a combination of direct discharges, surface water mnoff and/or groundwater migration from the Site.

Currently, the contaminated soil and sediment remains unmitigated. The Site is actively used as an industrial park by approximately fifteen businesses. The unpaved roadway produces visible amounts of dust when vehicles pass through during dry conditions. Surficial contamination may be transported off-site by vehicular traffic or dispersed into the air.

Migration of contaminants into the adjacent stream is apparently ongoing based on recent stream sample results. The highest levels of PCB aroclor-1254, lead and volatile organics detected in the stream sediments are present just upstream of the abandoned railroad overpass and down slope of the visible waste. The highest levels of 1,2-dichloroethene (100 ug/l), aroclor-1254 (20 ug/l) and

aroclor-1248 (24 ug/l) in the surface water have been detected several hundred feet downstream of this location near the storm water and drain discharge ditch which flows from the Site.

Future releases of these materials to the stream will continue unabated should conditions remain unmitigated. Additionally, since significant contamination exists on the surface soils, there will be an increased exposure potential through dust migration.

5. NPL status

The Site is not on the NPL. A Site Inspection (SI) has been completed. A Hazard Ranking System (HRS) package has been prepared and submitted to EPA Headquarters for review. In a letter dated April 8, 1997, the State requested the Site be placed on the NPL.

The Site was initially evaluated by the Agency for Toxic Substances and Disease Registry (ATSDR) for threats to public health on April 4, 1996, and then again on September 19, 1996 and October 25, 1996. ATSDR's findings are discussed in Section III of this Action Memorandum. Copies of the ATSDR Record of Activity (ROA) are included in Appendix C.

6. Maps, pictures, and other graphics representations

Figures included as Appendix B provide the location and configuration of the Site.

B. Other Actions to Date

1. Previous actions

On April 7, 1997, EPA personnel installed temporary fencing and warning signs at each end of the footpath to block pedestrian access to the disposal area. In addition, several large capacitors, which were leaking oil, were collected and over packed.

2. Current actions

EPA has initiated an investigation to determine if airborne migration of contaminants has occurred from areas of known PCB contamination to the surrounding community. EPA has also initiated an assessment of the Bound Brook to determine impacts of Site contaminants on human and ecological receptors. The results of these investigations will be used to determine the need for additional response actions.

C. State and Local Authorities' Role

1. State and local actions to date

There have been no State or local actions taken at the Site. The NJDOH is providing health consultations to the EPA through ATSDR. The NJDEP is reportedly working with the current

landowner conceming several Industrial Site Recovery Act (ISRA) cases related to past tenants in the industrial park.

2. Potential for continued state/local response

It is anticipated that the NJDOH will continue to provide technical assistance to the EPA concerning health issues at the Site. At this time it is not known whether there will be any other future State or local actions taken at the Site.

III. THREATS TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES

The following factors described in 40 CFR Part 300.415(b)(2) of the National Contingency Plan (NCP) were applied in determining the appropriateness of a removal action at the Site.

(i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants;

(ii) Actual or potential contamination of drinking water supphes or sensitive ecosystems;

(iii) High levels of hazardous substances, or pollutants, or contaminants in soils largely at or near the surface, that may migrate;

(iv) Weather conditions that may cause hazardous substance pollutants, or contaminants to migrate or be released; and

(v) The availability of other appropriate federal or state response mechanisms to respond to the release

A. Threats to Public Health or Welfare

i. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants;

Elevated levels of PCB aroclor-1254, a CERCLA designated hazardous substance, is present in the soils, sediments and surface waters in and around the Site. Significantly elevated levels of lead and cadmium are also present at a number of locations. In addition, a wide range of PAHs and low levels of several orgamc solvents and other heavy metals have been detected. At this time, the PCBs, lead and cadmium appear to be the overriding contaminants of concem from a human health perspective. Potential exposures can occur mostly through dust inhalation and dermal contact, and to a lesser degree, through ingestion.

The population at risk is mainly persons that access the industrial park on a regular basis, including the on-site businesses. Others, in particular younger persons that access the Site by the footpath are also at risk.

The ATSDR has reviewed the available sampling data and issued a ROA for the Site. In the ROA issued October 30, 1996, (see Appendix C), ATSDR concluded that PCBs are present at levels of public health concern at the Site and chronic exposure to PCBs in surface soil presents a public health concern to on-site workers and trespassers. ATSDR recommended that actions be taken to prevent exposure to PCBs in surface soil at levels of public health concern and prevent off-site migration of PCBs in dust or soil.

Contaminants present in sediments of the Bound Brook may enter the food chain. This is of particular concern due to the of the bioaccumulative properties of PCBs. Waters downstream of the Site are utilized as freshwater fisheries. Presently, there is no data indicting contamination of downstream fisheries, however, the potential for human health risk from consumption of contaminated fish can not be rnled out.

ii. Actual or potential contamination of drinking water supplies or sensitive ecosystems;

The nearest municipal drinking water well is located 0.6 miles north and down gradient of the Site. It is estimated, based on information from 1994, that 11,077 persons are served by wells located within 0.5 miles to one mile. At this time, there is no readily available information regarding groundwater contamination at the Site. The presence of shallow groundwater, the hydraulic connection between the stratified drift and the fractured bedrock and the relatively high hydraulic conductivity typical of the varied fill material present under portions of the Site increase the probability of groundwater contamination beneath the Site. According to an off-site unknown source investigation cpnducted by the NJDEP, groundwater contamination has been detected that may be originating, at least in part, from the Site.

iii. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate;

Due to the widespread PCB contamination and dusty conditions common to the Site, contaminants at the surface may be transported off-site by vehicular traffic or dispersion into the air. The relatively dense foliage surrounding the vacant field may limit migration off-site via air dispersion, however, this hmitation would be reduced during the winter and eariy spring months.

iv. Weather conditions that may cause hazardous substance pollutants, or contaminants to migrate or be released

During dry periods, dust is generated when contaminated areas are disturbed. Under windy conditions, contaminated dust may be entrained in air and migrate towards on-site businesses and/or off-site residential areas.

B. Threats to the Environment

i. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants;

A screening-level ecological risk assessment completed by the EPA Monitoring and Assessment Branch indicates that there is a potential ecological risk from PCBs, PAHs and inorganics in stream sediments. Potential ecological effects include direct toxicity impacts to benthic (bottom dwelling) and aquatic organisms. In addition, due to the tendency for these contaminants to bioaccumulate and enter the food chain, there may also be impacts to predatory species that inhabit the stream corridor (see Appendix D).

ii. Actual or potential contamination of drinking water supplies or sensitive ecosystems;

PCB aroclor-1254 has been detected at a concentration of 100 mg/kg in the wetlands located southeast of the waste disposal area. Elevated concentrations of PCBs, 1,2-dichloroethene, trichloroethene and lead have been detected in the surface waters and the sediments of the Bound Brook adjacent to the Site. The Bound Brook is classified by the State as a water body designated for the maintenance of natural and established biota. Eight known state or federal endangered species have been identified between 0.5 and four miles from the Site.

iii. High levels of hazardous substances, or pollutants, or contaminants in soils largely at or near the surface, that may migrate;

Contamination in the surface water and sediments may be present as a result of surface water runoff, direct discharge, or groundwater migration from the Site. Elevated levels of hazardous substances at the rear of the property, near the footpath, appear to have a direct surface runoff pathway into the Bound Brook.

iv. Weather conditions that may cause hazardous substance pollutants, or contaminants to migrate or be released.

Heavy rains can increase runoff from the Site towards the stream and wetlands adjoining the property.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COST

A. Prooosed Actions

1. Proposed action description

The following removal activities are proposed to address the immediate threats to human health and the environment posed by hazardous substances, or pollutants, or contaminants present at the Site:

i. Pave unpaved areas of the Site roadway and parking areas.

ii. Install chain link fence to hmit access to areas of known PCB contamination.

iii. Post waming signs at the Site perimeter, at Site access points and in areas of known PCB contamination.

iv. Hydroseed areas devoid of vegetation of the field to reduce the potential for migration of fugitive dusts.

v. Implement drainage controls to limit the migration of contaminants through surface water mn-off to the Bound Brook.

2. Contribution to remedial performance

The removal action at the Site is consistent with the requirement of Section 104(a)(2) of CERCLA, which states, "any removal action undertaken...should...to the extent practicable, contribute to the efficient performance of any long-term remedial action with respect to the release or the threatened release concerned." The proposed actions are necessary to reduce the potential for further release of contaminants to the environment and to mitigate threats posed to human health. The proposed actions do not preclude further remedial response actions.

3. Description of alternative technologies

The proposed removal action consists of interim measures to stabilize the Site. Innovative technologies were not considered for these actions.

4. EE/CA

Due to the time critical nature of this removal action, an EE/CA will not be prepared.

5. Applicable or Relevant and Appropriate Requirements (ARARS)

ARARS that are within the scope of this removal action will be met to the extent practicable. federal ARARS determined to be applicable for the proposed scope of work include the Resource Conservation and Recovery Act and Occupational Safety and Health Act.

6. Project schedule

The proposed removal action can be initiated immediately upon approval of this Action Memorandum. The removal action should be completed in six weeks.

B. Estimated Costs

The estimated costs for the completion of this project are summarized below.

Extramural Costs:	
Regional Allowance Costs:	
Total ERCS Cost (including 15% contingency)	$167,000
Other Extramural Costs Not Funded From the Regional Allowance:	
Total START costs	$ 20,000
Subtotal, Extramural Costs	$187,000
Extramural Costs Contingency (15% of subtotal, extramural costs)	$ 28,000
TOTAL, EXTRAMURAL COSTS	$215,000
Intramural Costs:	
Intramural Direct Costs	$ 10,000
Intramural Indirect Costs	$ 19,000
TOTAL, INTRAMURAL COSTS	$ 29,000
TOTAL, REMOVAL PROJECT CEILING	$244,000

VI. EXPECTED CHANGE IN THE SITUATION SHOULD NO ACTION BE TAKEN OR ACTION DELAYED

Delayed action will increase public health risk to those persons that access the contaminated portions of the Site. In addition, the potential exists for continued migration of elevated levels of PCBs into the stream adjacent to the Site.

VII. OUTSTANDING POLICY ISSUES

No known outstanding policy issues are associated with the Site.

VIII. ENFORCEMENT

Notice Letters were issued to two potentially responsible parties (PRPs) on February 22, 1997. A Unilateral Administrative Order was issued to the current property owner on March 25, 1997. The Order requires the property owner take actions to limit access to areas of known PCB contamination and limit the migration of contaminants off-site to the stream which borders the Site, paved driveways and parking areas within the industrial park. The property owner has not demonstrated that they are willing to undertake the required work in a timely manner.

IX. RECOMMENDATION

This decision document represents the selected removal action for the Comell-Dubilier Electronics Site located in South Plainfield, Middlesex County, New Jersey developed in accordance with CERCLA, as amended, and not inconsistent with the NCP. This decision is based on the administrative record for the Site.

Conditions at the Site meet the NCP Section 300.415(b)(2) criteria for a removal and I recommend your approval of the proposed removal action. The total project ceiling, if approved, will be $244,000. Of this, an estimated $167,000 comes from the Regional removal allowance. Funds for this removal action are currently within the Regional Advice of Allowance.

Please indicate your approval and authorization of fimding as per current Delegation of Authority, by signing below.

APPROVAL: _____ DATE: _____
Richard L. Caspe, Director
Emergency and Remedial Response Division

DISAPPROVAL: _____ DATE: _____
Richard L. Caspe, Director
Emergency and Remedial Response Division

cc: (after approval)
J. Fox, RA
W. Muszynski, DRA
R. Caspe, ERRD-D
W. McCabe, ERRD-DD
R. Salkie, ERRD-RAB
J. Rotola, ERRD-RAB
E. Dominach, ERRD-RAB
C. Petersen, ERRD-NJRP
B. Bellow, EPD
D. Karlen, ORC-NJSUP
S. Murphy, OPM-FIN
T. Johnson, 5202G
R. Van Fossen, NJDEP
M. Peterson, NJDEP
J. Smolenski, NJDEP
O. Douglas, START

APPENDIX A

REGION II

DATE: JUL 2 1 1995

SUBJECT: Potential Action at Cornell-Dubilier Site, S. Plainfield, NJ

FROM: Richard Spear, Chief
Surveillance and Monitoring Branch

TO: Richard Salkie, Associate Director
Removal and Emergency Preparedness Program

It has come to our attention, as a result of a site inspection performed by Malcolm Pirnie Inc., that a potentially hazardous environmental condition may exist at the former Cornell-Dubilier Site in downtown South Plainfield, NJ. High levels of PCB Arochlor-1254 are found in soils at the site (up to 1,100 ppm) and in the nearby unnamed tributary to Bound Brook (up to 550 ppm of Arochlor-1254). Elevated levels of cadmium (36.7 ppm), chromium (78.6 ppm), lead (2,200 ppm), mercury (2.9 ppm) and silver (26.7 ppm) are also found in the soils at the site.

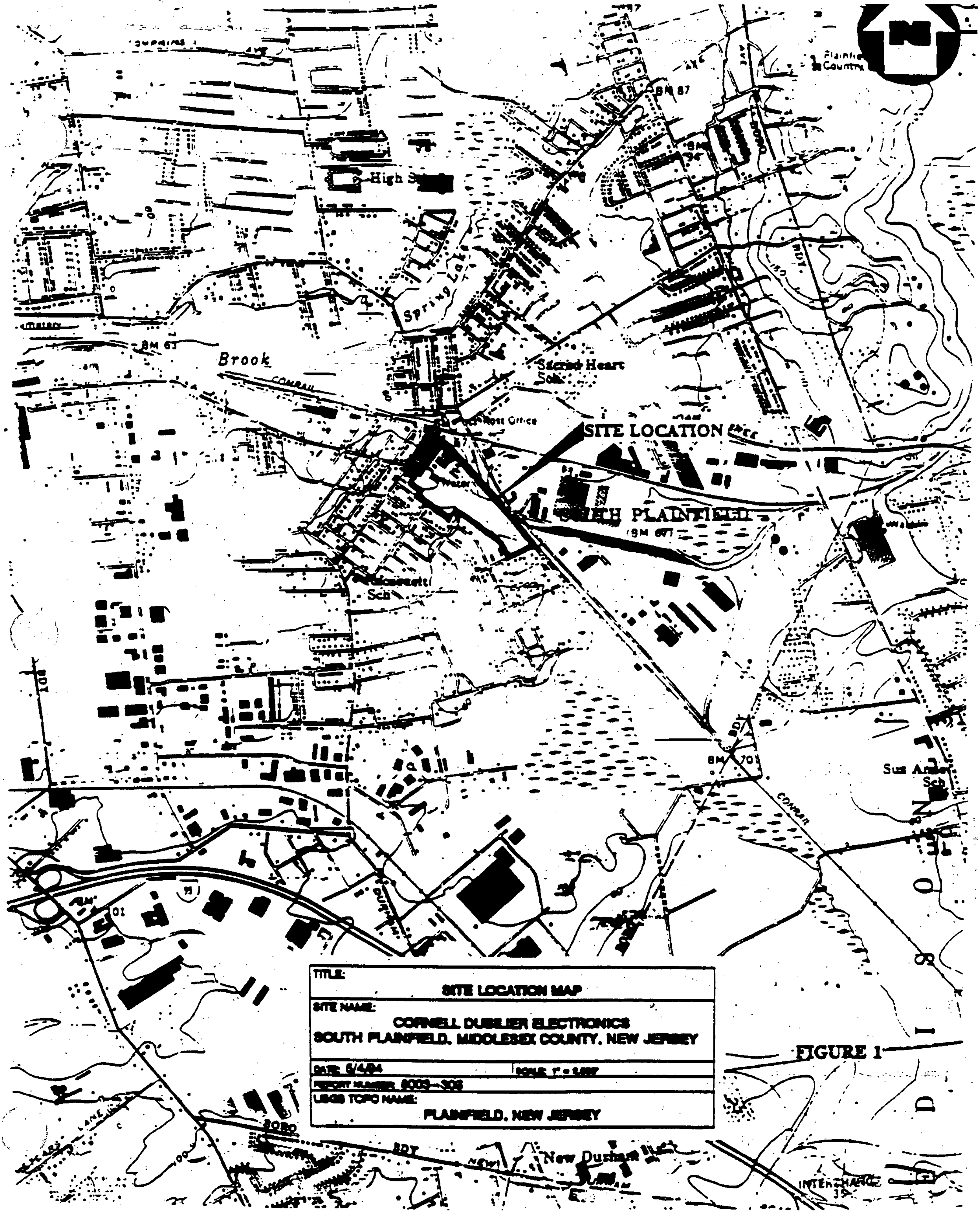
The site is not fenced and there are several homes within 200 feet of the site boundary. It is estimated that between 10 and 100 workers are employed at the Hamilton Industrial Park (the site's current name). Sampling results indicate that more than 0.1 miles of wetlands have been actually contaminated with Level II concentrations of PCBs.

Please review this information to determine if any stabilization or removal actions are necessary. A copy of the site screening letter prepared as part of the Hazardous Ranking System Package is attached to provide more detailed information.

Attachment

CC: D. Santella (2ERRD-PSB)

ATTACHMENT 1
CORNELL DUBILIER ELECTRONICS, INC.
FIGURES AND TABLES



TITLE:
SITE LOCATION MAP

SITE NAME:
CORNELL DUBILIER ELECTRONICS
SOUTH PLAINFIELD, MIDDLESEX COUNTY, NEW JERSEY

DATE: 6/4/94 | SCALE: 1" = 2,000'
REPORT NUMBER: 6003-303
USGS TOPO NAME:
PLAINFIELD, NEW JERSEY

FIGURE 1

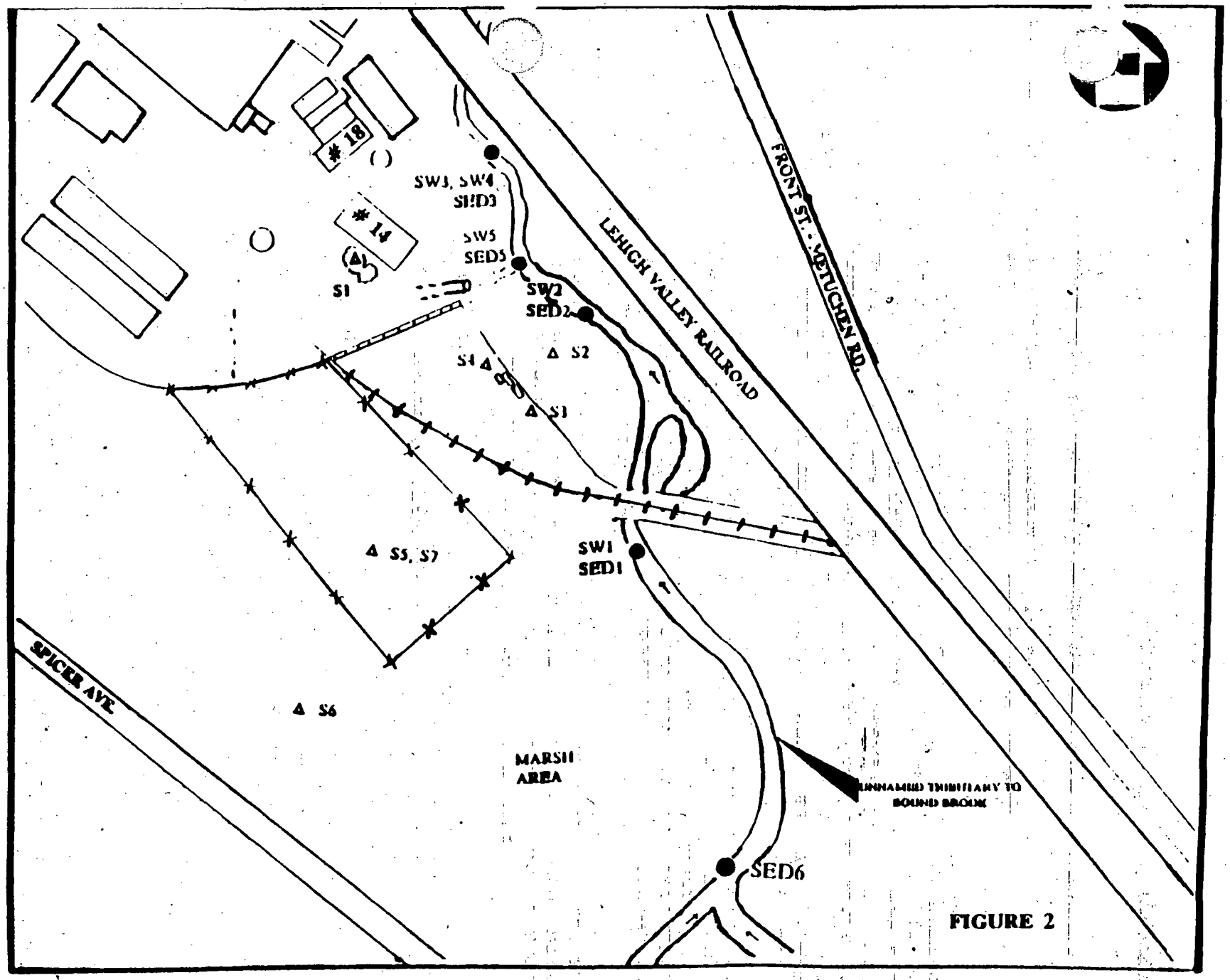


FIGURE 2

MAP KEY

SOIL SAMPLE △

SURFACE WATER /SEDIMENT SAMPLE ●

CORNELL DUBILIER ELECTRONICS
SOUTH PLAINFIELD, MIDDLESEX COUNTY, NEW JERSEY
SAMPLE LOCATION MAP
NOT TO SCALE

CORNELL DUBILIER ELECTRONICS
SOUTH PLAINFIELD, MIDDLESEX COUNTY, NEW JERSEY
OFF-SITE SAMPLE LOCATION MAP
SCALE: 1" = 2,000 FT.

FIGURE 3

Analytical Data[1]

Cornell Dubilier Site Inspection Prioritization Sampling Event - June 8, 1994

Hazardous Substance	Media	Background Sample Location	Background Sample Concentration µg/kg[2]	Contaminated Sample Location	Contaminated Sample Concentration µg/kg
arsenic	SOIL	S6	3,200	S1	16,700
				S2	15,200
				S3	25,700
				S4	12,900
cadmium	SOIL	S8	ND[3]	S4	4,700
				S5	33,200
				S7	36,700
chromium	SOIL	S6	11,900	S4	78,600
lead	SOIL	S8	43,200	S1	178,000
				S2	348,000
				S3	198,000
				S4	419,000
				S5	2,200,000
				S7	1,990,000
mercury	SOIL	S6	NO	S1	2,400
				S2	980
				S3	240
				S4	2,900
				S5	470
				S7	760
PCBs	SOIL	S6	8,200	S1	68,000
				S2	110,000
				S5	1,100,000
				S7	1,100,000
silver	SOIL	S8	1,100 J[4]	S2	6,800
				S5	28,700
				S7	22,900
PCBs (Aroclor-1254)	SEDIMENT	SED6[5]	520 E	SED1	550,000
		SED7[5]	250 E	SED2	3,700
		SED8[5]	310	SED3	4,500
				SED5	51,000

NOTES

1 All data has been analyzed and validated utilizing USEPA Contract Laboratory Program Protocols.
2 µg/kg = micrograms per kilogram
3 ND = Not Detected
4 J = estimated value, compound present below CRQL but above IOL
5 Background sediment samples were collected during a separate sampling event on October 13, 1994.

ATTACHMENT 2
CORNELL DUBILIER ELECTRONICS, INC.
PROJECT NOTES

To:File	Date:June 6, 1995
From:Andrew Clibanoff	Project #:8003-454
Subject:Waste Source Calculations	Site Name:Comell Dubilier Electronics, Inc.

One waste source has been identified at the Comell Dubilier Electronics, Inc (CDEI) site.

Waste Source 1 (Contaminated Soil): CDEI tested transformer oils at the site for an unknown peripd of time until the company vacated the site in 1961. It was alleged during COEI's period of operation that the company dumped transfonner oil contaminated with polychlorinated biphenyls (PCBs) directly onto site soils. Fomier employees have reportedly claimed that transfcnners were buried behind tha facility during the same time pericd. Surficial soil samples were collected from six locations during a June 1994 USEPA sampling event. Analyses of the soil samples detected the following CERCLA hazardous substances at concentrations greater than three times background levels: arsenic (25.7 mg/kg), cadmium (36.7 mg/kg), chromium (78.6 mg/kg), lead (2,200 mg/kg), mercury (2.9 mg/kg), PCBs (Aroclor-1254 @ 1,100,000 µg/kg), and silver (26.7 mg/kg). An area of > 0 square feet is assigned to this waste source.

To:File	Date:June 20, 1995
From:Andrew Cilbanoff	Project #:8003-454
Subject:Groundwater Apportionment	Site Name:Cornell Dubilier Electronics

There are two public water suppliers that draw water frpm wells located within four miles of the Cornell Dubilier Electronics Site: Middlesex Water Company and Elizabethtown Water Company.

Middlesex Water Company

Middlesex Water Company (MWC) utilizes 32 wells in conjunction with a surface water intake and water purchased from the Elizabethtown Water Company to supply potable water to approximately 52,000 service connections in the communities of South Plainfield, Metuchen, Carteret, Woodbridge, Edison and portions of Clark. A total population of 140,920 (52,000 service connections x 2.71 people/household in Mkidlesex County) receives its drinking water from Middleeex Water Company. Water is also provided via bcilk transmission lines to the communities of Edison Township, Highland Park, Old Bridge MUA, Mariboro Township MUA and Sayreville. Although the system is interconnected in such a way that it is possible for water from any water supply unit to reach the bulk transmission lines, practically all of the water shipped in the bulk transmission lines originates from the surface water intake. The surface water intake accounts for 63.2% of the total system flow for MWC, wells account for 31.4%, and 5.4% is purchased from the Elizabethtown Water Company.

Apportionment Calculation

1 Wellfield Name	2 No. of wells	3 % of total system flow (1994)	4 Population Wellfield (Column 3 * 140,920)
Park Avenue	15	18.5	26,070
Spring Lake	4	2.9	4,087
Maple Avenue	2	1.8	2,537
Sprague Ave. Nos. I & 2	2	2.8	3,946
Tingley Lane North & South	9	5.4	7,610
	32	31.4%	44,250

The Sprague Avenue wells arxl sbx of the fifteen Park Avenue wells ara drawing water from the stratified drift. All of the other wells owned by Middlesex Water Company tap the Brunswick Aquifer. The Spring Lake Wellfield is in the 0.5 to 1 mile ring. The Park Avenue, Maple Avenue, and Sprague Avenue Wellfields are located in the 1-2 mile ring. The Tingley Lane Wellfield is located in the 2-3 mile ring.

Stratified Drift

Population served in 1-2 mile ring = (Park arid Sprague Ave. Wells) = (10,428 + 3,946) = 14,374

Brunawfek Aquifer

Population served in ½-1 mile ring = Spring Lake Wells = 4,087

Population served in 1-2 mile ring = (Park and Maple Ave. Wells) = (15,642 + 2,537) = 18,179

Population served in 2-3 mile ring = Tingley Lane Wellfield = 7,610

To:File	Date:June 6, 1995
From:Andrew Clibanoff	Project #:8003-454
Subject:Groundwater Apportionment	Site Name:Colnell Dubilier Electronics

Elizabethtown Water Company (EWC)

Many communities within four miles of the site obtain their potable water from the Elizabethtown Water Company (EWC). EWC supplies drinking water to the communities of Somerville, Bridgewater Township, Warren Townahip, Green Brook, Duhellen, Middlesex Borough, Bound Brook, South Bound Brook, Piscataway and portions of Franklin Township.

The EWC distrixitian systwn currsndy blende water from five surface water intakes with water from 76 operating wells to providu water to 183,853 servica connections. A total population of 498,241 (183,853 service connections x 2.71 people/household in Mkidlesex County) receives its drinking water from Elizabethtown Water Company. Surface water makes up roughly 85% of the total system flow with one of the intakes on the Raritan River providing more than 40% of the total system flow. The distribution system is completely interconnected arxl all of the wells within four miles of the site tap the Brunswick Formation. The population served by grourxlwater within four miles of the site was estimated based on pumpage capacity. There are 21 operating EWC wells wittiin four miles of the Comell Dubilier Site. Two EWC operating wells (serving 2,571 people) are located within the 1-2 mile ring, four wells (serving 3,196 people) are located in the 2-3 mile ring and 15 wells (serving 14,063 people) are located within the 3-4 mile ring.

Summary of Apportionment Calculatione

Stratified Drift

Ring (mi)	Middlesex Water Co.	Elizabethtown Water Company	Total Population
0 - 0.25	0	0	0
0.25 - 0.5	0	0	0
0.5 - 1	0	0	0
1 - 2	14,374	0	14,374
2 - 3	0	0	0
3 - 4	0	0	0
Total:	14,374	0	14,374

Brunswiek Aquifer

Ring (mi)	Middlesex Water Co.	Elizabethtown Water Compapy	Total Population
0 - 0.25	0	0	0
0.25 - 0.5	0	0	0
0.5 - 1	4,087	0	4,087
1 - 2	18,179	2,571	20,750
2 - 3	7,610	3,196	10,806
3 - 4	0	14,063	14,063
Total:	29,876	19,830	49,706

Elizabethtown Water Company
Active Well List - June 15, 1995

	Municipality	Facility Name	Well Depth (feet)	Fonnation	Pump Cap. (gpm)	% Total System Flow	Population Per Well
1	Bound Brook	Mountain Sta. #1	366'	Bmnswick	375	0.21%	1,042
2	Bound Brook	Mountain Sta. #1	403'	Brunswick	350	0.20%	973
3	Bound Brook	Mountain Sta. #3	352'	Bounswick	—	0.00%	0
4	Bridgewater	Papen Road	225'	Basalt	310	0.17%	862
5	Bridgewater	Wells Road #3	230'	Basalt	45	0.03%	125
6	Bridgewater	Wells Road #2	230'	Basalt	40	0.02%	111
7	Cranbury	Cranbury Well #1A	260'	Farrington	300	0.17%	834
8	Cranbury	Cranbury Well #2	110'	Old Bridge	—	0.00%	0
9	Cranbury	Cranbury Well #3	298'	Farrington	400	0.22%	1,112
10	GREEN BROOK	GREEN BROOK #1	481'	BRUNSWICK	310	0.17%	862
11	GREEN BROOK	GREEN BROOK #2	378'	BRUNSWICK	650	0.36%	1,807
12	GREEN BROOK	GREEN BROOK #3	550'	BRUNSWICK	60	0.03%	167
13	GREEN BROOK	GREEN BROOK #4	400'	BRUNSWICK	350	0.20%	973
14	GREEN BROOK	GREEN BROOK #5	454'	BRUNSWICK	315	0.18%	875
15	GREEN BROOK	GREEN BROOK #6	373'	BRUNSWICK	280	0.16%	778
16	GREEN BROOK	GREEN BROOK #7	548'	BRUNSWICK	180	0.10%	500
17	GREEN BROOK	GREEN BROOK #8	448'	BRUNSWICK	500	0.28%	1,390
18	GREEN BROOK	GREEN BROOK #9	507'	BRUNSWICK	500	0.28%	1,390
19	GREEN BROOK	GREEN BROOK #11	433'	BRUNSWICK	340	0.19%	945
20	GREEN BROOK	ROCK AVENUE	350'	BRUNSWICK	330	0.18%	917
21	Kenilworth	Quinton Avenue	502'	Brunswick	185	0.10%	514
22	Montgomery	Montgomery #1	305'	Stockton	400	0.22%	1,112
23	Montgomery	Montgomery #2	335'	Stockton	300	0.17%	834
24	Mountainside	Bristol Road	315'	Brunswick	330	0.18%	917
25	Mountainside	Charles Street #1	454'	Brunswick	300	0.17%	834
26	Mountainside	Charles Street #2	572'	Brunswick	150	0.08%	417
27	N. PLAINFIELD	BOARD OF EDUCATION	311'	BRUNSWICK	400	0.22%	1,112
28	PISCATAWAY	ROCK AVENUE	380'	BRUNSWICK	150	0.08%	417
29	PLAINFIELD	FIFTH STREET	350'	BRUNSWICK	300	0.17%	834
30	Plainfield	George Street	350'	Brunswick	125	0.07%	347
31	PLAINFIELD	NETHERWOOD #1	350'	BRUNSWICK	220	0.12%	611
32	PLAINFIELD	NETHERWOOD #2	500'	BRUNSWICK	225	0.13%	625
33	PLAINFIELD	NETHERWOOD #3	380'	BRUNSWICK	600	0.33%	1,668
34	Plainfield	Netherwood #4	400'	Brunswick	300	0.17%	834
35	Plainfield	Netherwood #5	350'	Brunswick	300	0.17%	834
36	Plainfield	Netherweed #6	300'	Brunswick	325	0.18%	903
37	Plainfield	Netherwood #7	350'	Brunswick	350	0.20%	973
38	Plainfield	Netherwood #8	304'	Brunswick	300	0.17%	834
39	Plainfield	Netherwood #9	350'	Brunswick	300	0.17%	834
40	Plainfield	Netherwood #10	350'	Brunswick	300	0.17%	834
41	Plainfield	Netherwood #11	350'	Brunswick	250	0.14%	695
42	Plainfield	Netherwood #12	352'	Brunswick	400	0.22%	1,112
43	PLAINFIELD	PROSPECT AVENUE	380'	BRUNSWICK	300	0.17%	834
44	Plainsboro	Plainsboro #1	120'	Raritan	350	0.20%	973
45	Plainsboro	Plainsboro #2	208'	Raritan	295	0.16%	820
46	Princeton	Harrison Street #1	503'	Stockton	100	0.06%	278
47	Princeton	Harrison Street #4	302'	Stockton	150	0.08%	417

Elizabethtown Water Company
Active Well List - June 15, 1995

	Municipality	Facility Name	Well Depth (feet)	Formation	Pump Cap. (gpm)	% Total System Flow	Population Per Well
48	Princeton	Harrison Street #5	300'	Stockton	240	0.13%	667
49	Princeton	Harrison Street #6	335'	Stockton	390	0.22%	1,084
50	Princeton	Harrison Street #7	300'	Stockton	65	0.04%	181
51	Princeton	Stony Brook #2	300'	Stockton	300	0.17%	834
52	Princeton	Stony Brook #3	353'	Stockton	400	0.22%	1,112
53	Princeton	Stony Brook #4	382'	Stockton	300	0.17%	834
54	Princeton	Stony Brook #6	304'	Stockton	450	0.25%	1,251
55	Princeton	Stony Brook #7A	350'	Stockton	600	0.33%	1,668
56	Princeton	Stony Brook #8	302'	Stockton	600	0.33%	1,668
57	Raritan Township	Maple Glen	355'	Brunswick	250	0.14%	695
58	SCOTCH PLAINS	ABERDEEN ROAD	3S0'	BRUNSWICK	200	0.11%	558
59	Scotch Plains	Glenside Avenue	540'	Brunswick	200	0.11%	556
60	Scotch Plains	Jerusalem Road #1	850'	Brunswick	275	0.15%	764
61	Scotch Plains	Jerusalem Road #2	665'	Brunswick	350	0.20%	973
62	Scotch Plains	Jerusalem Road #3	708'	Brunswick	150	0.08%	417
63	SOUTH PLAINFIELD	CLINTON AVENUE	350'	BRUNSWICK	475	0.26%	1,320
64	SOUTH PLAINFIELD	EIGHTH STREET	350'	BRUNSWICK	450	0.25%	1,251
65	Tewksbury	Pottersville	300'	Pre-Cambrian	100	0.06%	278
66	Union	Hummocks #4A	117.5'	Brunswick	70	0.04%	195
67	Union	Hummocks #5A	128'	Brunswick	100	0.06%	278
68	Union	Hummocks #8AR	130'	Brunswick	300	0.17%	834
69	Union	Hummocks #7A	233'	Brunswick	85	0.05%	236
70	Union	Hummocks #8A	114'	Brunswick	200	0.11%	556
71	Union	Hummocks #17	99.5'	Brunswick	250	0.14%	695
72	Union	Hummocks #H2	110'	Brunswick	150	0.08%	417
73	Union	Ranhey Well Pump #1	99'	Brunswick	2,500	1.39%	6,948
74	Union	Ranney Well Pump #2	99'	Brunswick	2,500	1.39%	6,948
75	West Windsor	Jefferson Park #1	121'	Raritan	600	0.33%	1,668
76	West Windsor	Jefferson Park #2	126'	Raritan	600	0.33%	1,668

Total Pumpage Capacity:	26,490	14.78%	73,624
Total Intake Capacity:	152,778		
Total System Capacity:	179,268		

Total Service Connections (Elizabethtown Water Company): 183,853
Population/Household (Middlesex County): 2.71

Total Population Served: 498,242

Notes:
1. **Wells within four miles of the Comell Dubilier Electronics, Inc. Site shown in bold and caps.**
2. **% Total System Flow = (Pumpage Capacity / Total System Capacity) x 100.**
3. **Population Per Well = (% Total System Flow x Total Population Served) / 100**

Comeii Dubilier Electronics, Inc.
Elizabethtown Water Company Wells
Located Within Four Miles of the Site

Facility Name	Formation	Distance Category (miles)	Pumpage Capacity (gpm)	% Total System Flow	Population Per Well
CLINTON AVENUE	BRUNSWICK	1 - 2	475	0.26%	1,320
EIGHTH STREET	BRUNSWICK	1 - 2	450	0.25%	1,251
BOARD OF EDUCATION	BRUNSWICK	2 - 3	400	0.22%	1,112
ROCK AVENUE	BRUNSWICK	2 - 3	150	0.08%	417
FIFTH STREET	BRUNSWICK	2 - 3	300	0.17%	834
PROSPECT AVENUE	BRUNSWICK	2 - 3	300	0.17%	834
GREEN BROOK #1	BRUNSWICK	3 - 4	310	0.17%	862
GREEN BROOK #2	BRUNSWICK	3 - 4	650	0.36%	1,807
GREEN BROOK #3	BRUNSWICK	3 - 4	60	0.03%	167
GREEN BROOK #4	BRUNSWICK	3 - 4	350	0.20%	973
GREEN BROOK #5	BRUNSWICK	3 - 4	315	0.18%	875
GREEN BROOK #6	BRUNSWICK	3 - 4	280	0.16%	778
GREEN BROOK #7	BRUNSWICK	3 - 4	180	0.10%	500
GREEN BROOK #8	BRUNSWICK	3 - 4	500	0.28%	1,390
GREEN BROOK #0	BRUNSWICK	3 - 4	500	0.28%	1,390
GREEN BROOK #11	BRUNSWICK	3 - 4	340	0.19%	945
ROCK AVENUE	BRUNSWICK	3 - 4	330	0.18%	917
NETHERWOOD #1	BRUNSWICK	3 - 4	220	0.12%	611
NETHERWOOD #2	BRUNSWICK	3 - 4	225	0.13%	625
NETHERWOOD #3	BRUNSWICK	3 - 4	600	0.33%	1,668
ABERDEEN ROAD	BRUNSWICK	3 - 4	200	0.11%	556

Total Population (1 - 2 Mile Ring): 2,571
Total Population (2 - 3 Mile Ring): 3,196
Total Population (3 - 4 Mile Ring): 14,063

State of New Jersey

Christine Todd Whitman
Governor

Department of Environmental Protection

Robert C. Shinn, Jr.
Commissioner

APR 02 1997

Richard L. Caspe, Director
Emergency and Renedial Response Division
U.S. Environmental Protection Agency, Region II
290 Broadway
New York, New York 10007-1866

Re: Removal Request - Cornell Dubilier Electronics Inc.
333 Hamilton Boulevard
South Plainfield, Middlesex County

Dear Director Caspe:

The New Jersey Department of Environmental Protection (Department) hereby submits the Cornell-Dubilier Electronics Inc. site ("site") for CERCLA removal action consideration. The following information details the case history and supports the removal request.

The site is located at 333 Hamilton Boulevard in South Plainfield Borough, Middlesex County. It is approximately 25 acres in size and is bordered to the north, west and south by commercial and residential properties. The area to the east of the site is zoned and utilized entirely for Industrial purposes. The site is designated as Block 256, Lot 1 on the municipal tax map of the Borough of South Plainfield. Cornell Dubilier Electronics Inc. (CDE) owned the site from 1956 to 1961. The current property owner is DSC of Newark Enterprises Inc.

CDE produced capacitors and tested transformer oils at the site until 1961 when the company vacated the site. Currently, the site is occupied by the Hamilton Industrial Park which consists of approximately 15 small industries.

During the years CDE operated from the site it has been alleged that the company dumped transformer oil contaminated with polychlorinated biphenyls (PCBs) directly onto soil at the site. Also, information obtained by the Department's Responsible Party Investigation Unit indicates that waste generated by CDE operations (i.e. spent filter material from the PCB recovery system, residue from trichloroethylene recycling units, capacitors etc.) were landfilled at the site.

On September 11, 1986 Department personnel conducted a Site Inspection and collected soil, surface water and sediment samples. Several metals, volatile organic compounds (VOC) and PCB contamination was detected in the soil. PCB contamination was also detected in sediment samples.

On February 13, 1992 the Department issued a Directive to CDE to 1) determined if the discharges of hazardous substances has contaminated the ground water at the site, 2) if the ground water has been contaminated, determine If the contamination is leaving the site, 3) remediate all sources of the contamination and 4) if the contamination has migrated off site, to institute measures to prevent contamination from migrating any further off site.

On June 19, 1992 the case was transferred to the Division of Publicly Funded Site Remediation (DPFSR) due to non-compliance by CDE to the directive. The South Plainfield area has been identified as a regional ground water contamination area. DPFSR determined that water lines and point of entry treatment systems (POETS) have been or were being installed under the Spill Fund Program in the area near CDE and thereby no additional actions vere taken.

On June 8, 1994, as part of a Site Inspection Prioritization, EPA collected soil, surface water and sediment samples. Sampling results revealed elevated concentrations of semivolatile organic compounds, PCBs, and inorganic constituents in the site soil. Sediment samples were inconclusive due to conflicting analysis results.

On February 26, 1996 EPA resampled the site. PCB contamination was documented in both soil and sediment samples.

In addition, the current property owner, DSC of Newark Enterprises Inc., has submitted several reports to the Department for review under the ISRA program during the period from 1994 to 1996. Department review of the submissions revealed chat the reports did not disclose all of tha environmantal Issues, Including PCB contamination, associated with the site.

EPA has requested the Department's concurrence to propose the site for NPL listing. In addition, the EPA Removal Action Branch has conducted an assessment to evaluate the threat posed by PCB contaminated soil at the site. The Removal Action Branch ia currently working with responsible parties to initiate remedial activitiea which will stabilize any immediate threats to the envizonment and the local population.

It should be noted that only soil and sediment samples have been collected at the site and, to date, a ground water investigation has not been conducted. However, based on existing information, the CDE site is a likely contributor to the regional ground water contamination documented in the area.

The Department views the presence of PCB contaminated soil to be a serious direct contact threat to the residents in the immediate area. Also, it appears past site activities are responsible for the regional ground water contamination documented in the area, however, additional ground water data needs to be collected at the site to confirm the lirdc to the off site ground water impact.

As Indicaced in the above summary of activities, the EPA is already actively involved at the site. This document formally refers the site to EPA for removal action activities.

As such, the Department therefore requests that EPA sample, characterize and dispose of all hazardous substances found at the site in such a way as to safeguard the local population, and perform any necessary investigatory and remedial work at the site as deemed appropriate.

Should your staff require additional information please have them contact Janet M. Smolenski of the Bureau of Field Operations, Case Assignment Section at (609) 292-2943.

Sincerely,

Robert R. Van Fossen

Robert R. Van Fossen
Assistant Director
Discharge Response Element

c: Richard Salkie, Branch Chief, Removal Action Branch, EPA
Bruce Sprague, Branch Chief, Response and Prevention Branch, EPA
Al Kaczoroski, Bureau Chief, Bureau of Field Operations
Janet Smolenski, EPA Removal Action Coordinator, Bureau of Field Operations -- Case Assignment Section

APPENDIX B

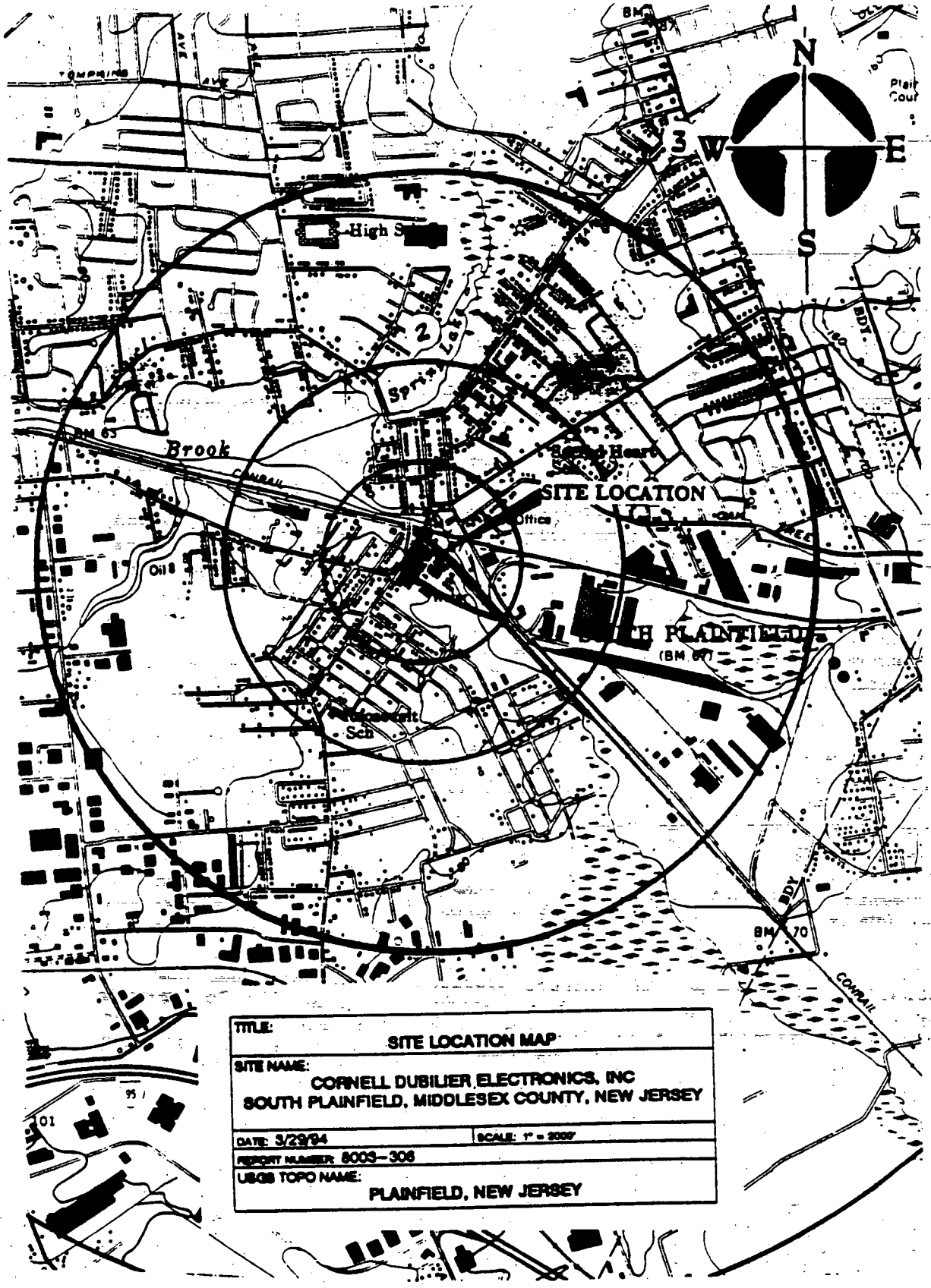
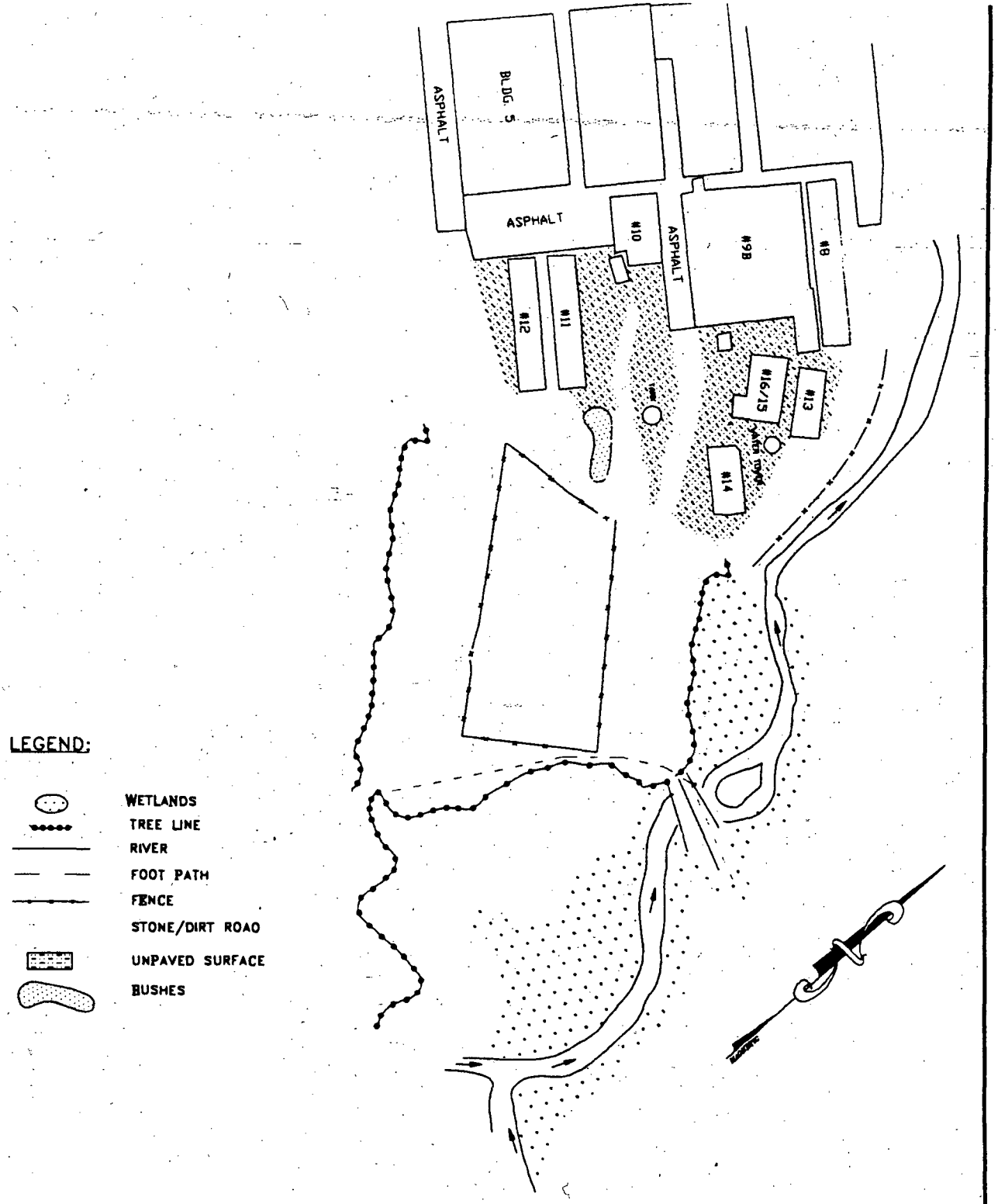

N
W
E
S
SITE LOCATION
TITLE:
SITE LOCATION MAP
SITE NAME:
CORNELL DUBILIER ELECTRONICS, INC
SOUTH PLAINFIELD, MIDDLESEX COUNTY, NEW JERSEY
DATE: 3/29/94
SCALE: 1" = 2000'
REPORT NUMBER: 8003-306
USGS TOPO NAME:
PLAINFIELD, NEW JERSEY

FIGURE 1



LEGEND:

- WETLANDS
- TREE LINE
- RIVER
- FOOT PATH
- FENCE
- STONE/DIRT ROAD
- UNPAVED SURFACE
- BUSHES

APPROXIMATE SCALE: 1" = 145'

SAMPLING LOCATION MAP
CORNELL-DUBILIER ELECTRIC
SOUTH PLAINFIELD, NEW JERSEY
AUGUST 1996

US EPA REMOVAL ACTION BRANCH
SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM
CONTRACT NO. 68-W5-0019

Roy F. Weston, Inc.
FEDERAL PROGRAMS DIVISION

IN ASSOCIATION WITH PRC ENVIRONMENTAL MANAGEMENT, INC., C.C. JOHNSON & MALHOTRA, P.C., RESOURCE APPLICATIONS, INC., R.E. SARRIERA ASSOCIATES, AND ORB ENVIRONMENTAL SERVICES, INC

DRAWN BY: J. HAMPTON JR.
EPA TASK MONITOR: N. MAGRIPLES
START PROJECT MANAGER: C. STANNICK

FIGURE 2

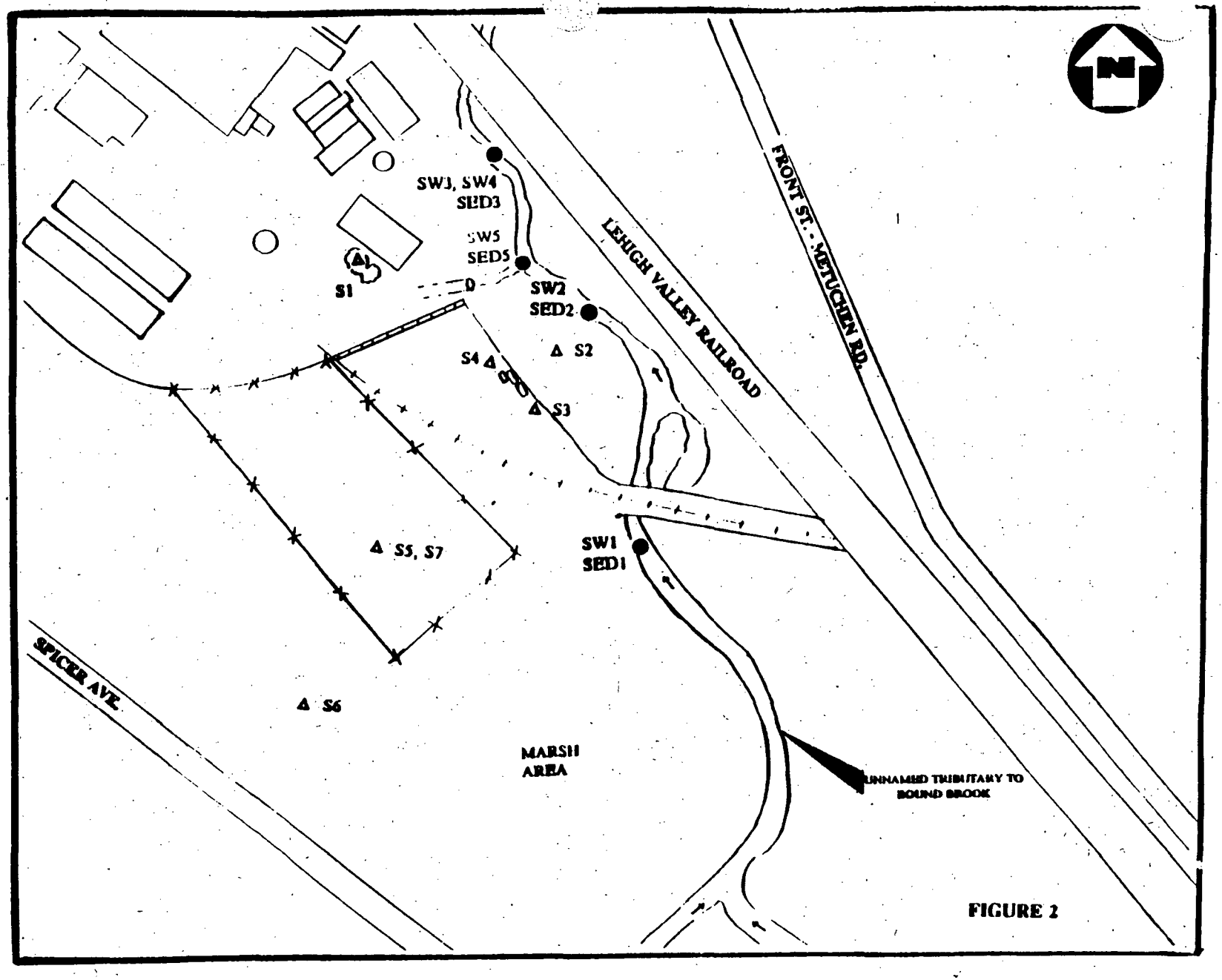


FIGURE 3

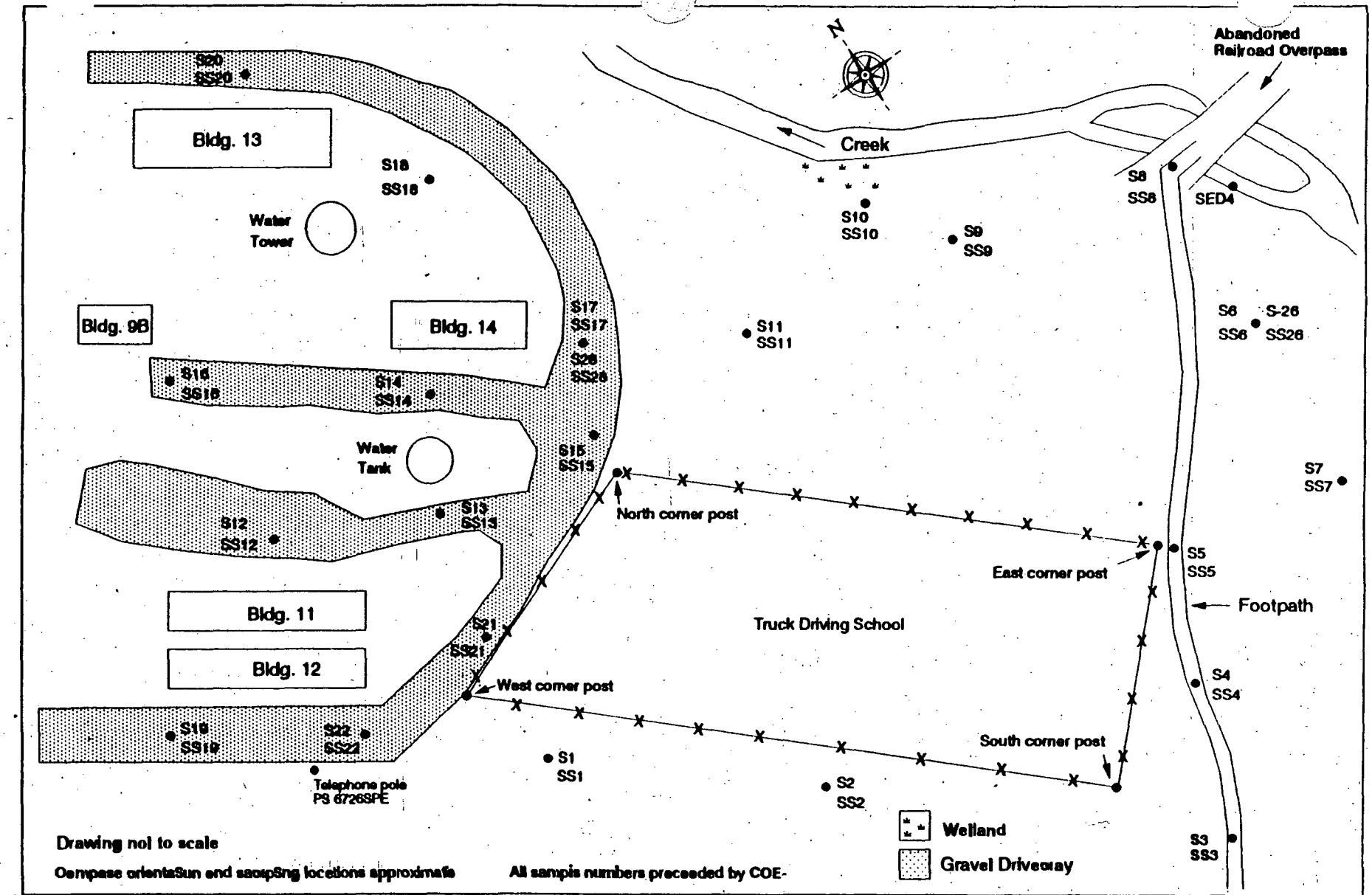
MAP KEY

SOIL SAMPLE Δ

SURFACE WATER/SEDIMENT SAMPLE ●

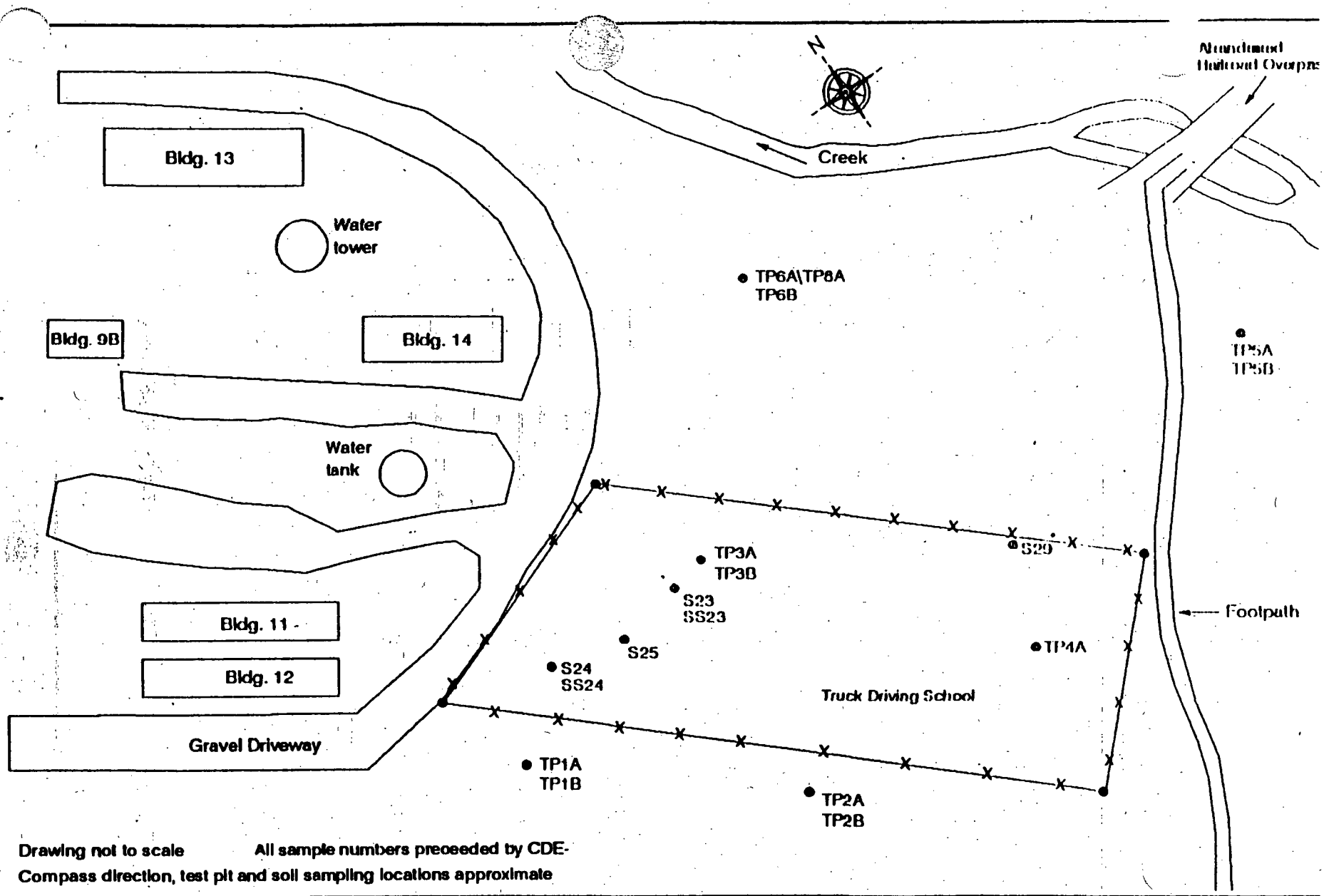
CORNELL DUBILIER ELECTRONICS
SOUTH PLAINFIELD, MIDDLESEX COUNTY, NEW JERSEY
SAMPLE LOCATION MAP
NOT TO SCALE

FIGURE 4



WESTON	**Roy F. Weston, Inc.** **FEDERAL PROGRAMS DIVISION**	**EPA PM** N. Magriples	**Cornell-Dubilier Electronics** **South Plainfield, NJ**
IN ASSOCIATION WITH RESOURCE APPLICATION, Inc. C.C. JOHNSON a MALHOTRA, P.C., R.E. SARRIERA ASSOCIATES, PRC ENVIRONMENTAL MANAGEMENT, AND GRB ENVIRONMENTAL SERVICES, INC.		**START PM** K. Campbell	**Figure 2: Sample Location Map**

FIGURE 5



WESTON Roy F. Weston, Inc. FEDERAL PROGRAMS DIVISION	EPA PM N. Magriples	Cornell-Dubilier Electroni South Plainfield, NJ
IN ASSOCIATION WITH RESOURCE APPLICATION, Inc. C.C. JOHNSON & MALHOTRA, P.C., R.E. SANDIERA ASSOCIATES, PRC ENVIRONMENTAL MANAGEMENT, AND GRB ENVIRONMENTAL SERVICES, INC.	START PM K. Corripboll	Figure 2: Sampling and Tost Pit Locations

APPENDIX C

Name:
ERS LOG #:

ATSDR Record of Activity

ROUTING:
J. Holler, D. Barry, R. Nickle, J. Risher

ESS FZLE8

UID #: BFH0 Date: 3/27/96 Time: 10am x pm _

Site Name: Cornell-Dubilier Electronics City: South Plain Field
Cnty: Middlesex State: NJ

CERCLIS #: NJD 981557879 Cost Recovery #: 9 Region: 2

Site Status (1) _ NPL x Non-NPL _ RCRA _ Non-Site specific _ Federal
(2) _ Emergency Response Renedial x other: Pre-remedial

Activities

x Incoming Call
_ Outgoing Call
_ Conference Call
_ Incoming Mail
_ Public Meeting
_ Other Meeting
_ Data Review
_ Other
_ Health Consult
_ Health Referral
_ Written Response
_ Site Visit
_ Info Provided
_ Training

Requester and Affiliation: (1) @ Nick Megriplos OSC-EPA Region 2

Phone: @(908) 906-6930, FAX (908)906-6182 Address: USE Removal Action, 2890 Woodbridge Ave
City: @ Edison State: @NJ Zip Code: 08837

Contacts and Affiliation

(31) Artie Block - ATSDR Region 2
( ) ( )

1-EPA	2-USCG	3-OTHER FED	4-STATE ENV	5-STATE HLT
6-COUNTY HLTH	7-CITY HLTH	8-HOSPITAL	9-IAH SHFORCE	10-FIRE DEPT
11-POISON CTR	12-PRIV CIT2	13-OTHER	14-UNKNOWN	15-DOD
16-GOE	17-NOAA	18-OTHR STATS	19-OTHR COONTY	20-OTHR CITY
21-2NTL	22-CZTZ GROUP	23-ELECT. OPF	24-PRIV. CO	25-HEHS MEDIA
26-ARMY	27-NAVY	28-AIR FORCE	29-DEF LOG ACCY	30-MRC
31-ATSDR				

Program Areas

_ Health Assessment
_ Worker Hlth
_ Petition Assessment
_ Admin
x Emergency Response
_ Other
x Health Consultation
_ Health Studies
_ Health Surveillnc
_ Disease Registry
_ Exposr Registry
_ Tox Info-profile
_ Tox Info-Hbnprofil
_ Subst-Spec Reach
_ Health Education

ERS LOG #:

Narrative Summary:

ATSDR Sr. Regional Rep Artie Block referred a question from the SPA On-Scene Coordinator, Nick Hagriples, relating to a pre-reaedial site, Cornell-Dubilier in NJ. The OSC had observed that part of site was being utilized by a Truckihg company to train drivers in trucking-trailer maneuvering. The surface road utilized for the training conaisted aostly of dirt and dirt gravel. During the driwing operations a lot of dust and dirt was kicked into the air by the trucks. In addition wind also contributed to the dusty site conditions. The dust appeared to drift off site into a wooded, wetland area. The OSC noted an office trailer located at the site proximal to which 6-7 persons were sitting and standing near the trailer upwind. Soil samples obtained in June 1994 ower this 29 acre site froa 0-1 foot depth included Aroclor 1254 (1100 ppn), Lead (2200ppm), cadmium (37ppm). No air sampling data was available. The OSC questioned whether the site posed an immediate health threat requiring an ewacuation. He also questioned whether a dermal exposure concern existed for the Aroclor 1254.

Action Reoulrad/Reeommendations/Info Provided:

ATSDR emergency response coordinators Beth Hibbs and Richard Nickle provided the following recoamendations concerning site.

1. Air samples for contaainants of concern under dusty conditions should be promptly obtained and evaluated.

2. Based on the available soil sampling data froa 1994 and obserwations of a possible completed exposure pathway at the site, a potential health threat was present. Until air sampling is obtained no ewacuation of this outdoor area was deemed necessary. This recomaendation is based on the available sbil saapling data. ATSDR used the naximum concentrations reported for lead and Aroclor 1254 in soil and extrapolated the ratio of contaminant to clean soil to lewels of health concern in air.

   Aroclor 1254 was reported at a maxiaum of 1100 mg/kg = 1100 ug/g =1.1 microgram for ewery milligram of dust, The NIOSH, REL = lug/m3, the OSHA, PEL = 500 ug/m3, Intezmediate health effects are reported in the ATSDR toxicological profile for PCB's at 1.5 mg/m3, (No acute effects). Therefore, if the maximum reported by EPA is assumed to be uniformly distributed ower the site and if dust and dirt containing this level of PCB became airborne, then the equivalent total particulate matter would need to exceed 1 mg/m3, 500 mg/m3, 1500 mg/m3 respectively to reach these levels of concern. These concentrations of PCB do not represent acute, immediate health threats. Dermal exposure of the Aroclor was also a potential problem. However, the available literature on PCB exposure discusses toxicological dermal exposure from application of PCBs liquid directly to the skin and not as adhered to dirt on skin (ATSDR toxicological profile on PCBs). Another consideration was the fact that the animal studies also used oil or isopropanol

as a vehicle to enhance dermal absorption of the PCBs. At the Cornell-Dubilier site the PCB's were attached to soil particles and dermal absorption would probably not be as complete as those discussed in the studies. Even it vas assumed that dermal absorption was as effectiwe as those discussed in the toxicological profile, in this instance, a 70 kg person would need to be exposed to 3 grams of PCB on their skin before reaching the exposure level for dermal effects exhibited in the animal studies. This was deriwed from the Vos and Notenbooa-Ram 1972, study shoving acne and hyperkeratosis of New Zealand Rabbits who wera exposed to 44.4 mg/kg/day of Aroclor 1260 PCBs in an isopropanol wehicle.

Lead was another contaminant of concern at the site. The aaximum lead concentration for the site was reported at 2200 ng/kg = 2.2 ug/mg. The NIOSH REL = 100 ug/m3 which when diwided by the reported site concentration approximates 50 ag/m3 total particulate matter. The OSHA TLV=PEL = So ug/m3 which when divided by the reported site concentration approximates 25 mg/m3 total particulate matter. The OSHA action lewel = 30 ug/a3 which approximates 15 ag/m3 total particulate aatter when divided by the reported site concentration. The lowest observed health effect in animals exposed to lead in air for intermittent health effects identified in the toxicological profile = 11 ug/m3 which approximates 5 mg/m3 total particulate matter when diwided by the reported site concentration. Acute health effects are identified in the toxicological profile on lead as being at 1600 ug/m3 which approximates 800 ag/a3 when divided by the reported site concentration. Therefore if dust and dirt became airborne at the maxiaua level of cohtaainatlon of 2.2 ug/mg it would need to exceed the 15 mg/a3, 25 mg/m3 and 50 mg/m3 respectively. Therefore to represent an acute threat for lead, total particulate aatter would have to reach 800 mg/m3.

Nuisance dusts in occupational settings should not exceed a TLV-TWA of 10 mg/m3 (ACGIH 1993). For ambient air quality the standard is 150 ug/m3 average over a 24 hour period (40 CPR 50.6).

It should be noted that the abowe comparisons of contaainants in particulate matter are rough approxiaations which do not consider dispersion factors (e.g. wind speed) that could effect concentrations. These approximations can not take the place of actual air monitoring data. They assume a maximum attained concentration from 1994 data, is representative of the entire site in 1996. It is also assumed that contaainated particulates are as easily dispersed as uncontaminated particulates.

3. Workers at the site should be advised of the potential health threat so that precautionary measures may be taken (e.g. dust control measures).

4. Purther consultation of air monitoring should be sought with ATSDR, Health Consultation Section, Diwision of Health Assessment and Consultation (DHAC).

4/2 Addendum: After agency reviev of this AROA, two additional concerns were brought up. These concerns were discussed with Nick Hagriples on 4/3. When sampling results are available they should be evaluated considering a worker's frequency and duration of exposure. Previous exposure to elevated levels of contaminants for weeks or months could be significant. The potential tracking of contaminants off site by workers, vehicles or weather conditions could also be of concern.

4/4 Addendum: The OSC called ATSDR and requested recommendations for air sampling. The OSC mentioned that if the wind changed direction the dust from the site could drift toward a nearby residential area. ATSDR provided the following recommendations. Air and soil sampling should be performed near the closest border of the residential area to the site. Residential air sampling should be performed on a day that vinds blow towards the residential area. An upwind control air sample should be obtained. Sampling at the work site should include locations such as the inside of the truck cab while driwing, and at observation benches used by obserwers. Air samples should be obtained at breathing heights. Specific guidance for questions relating to air sampling may be obtained from NIOSH, Division of Surweillance, Hazard Ewaluation and Field Studies, industrial Hygiene Section (513) 841-4374.

Signature: Beth F. Hibbs Date: 4/4/96

Enclosures: Yes ( ) No (x); MIS entered: Yes ( ) No (x)

cc: ATSDR Region 2
DHAC Health Consultations
DHAC/PERIS
State Cooperative Agreement

Name: Cornell-Dubilier Electronics
LOG #: 96-4046

ATSDR Record of Activity

ROUTING:
E. Skowronski
CS PILE

UID #: sykS Date: 9-17-96 Time: _____ am _ pm _

Site Name: Cornell-Dubilier Electronics City: South Plainfield
Cnty: Middlesex State:NJ

CERCLIS #: _____ Cost Recovery #: 20GZ Region: 2

Site Status: (1) _ NPL x Non-NPL _ RCRA _ Non-Site specific _ Federal
(2) x Emergency Response _ Remedial _ Removal _ Other:

Activities

_ Incoming Call _ Public Meeting _ Health Consult _ Site Visit
_ Outgoing Call _ Other Meeting _ Health Referral _ Info Provided
_ Conference Call x Data Review _ Written Response _ Training
_ Incoming Mail _ Other

Requestor and Affiliation: (1) Nick Magriples
Phone: _____ Address: _____
City: _____ State: __ Zip Code: _____

Contacts and Affiliation

(31) Steve Jones ( ) _____
( ) _____ ( ) _____

1-EPA 2-USCG 3-OTHER FED 4-STATE ENV 5-STATE HLT 6-COUNTY HLT
7-CITY HLTH 8-HOSPITAL 9-LAW ENFORCE 10-FIRE DEPT 11-POISON CTR
12-PRIV CITZ 13-OTHER 14-UNKNOWN 15-DOD 16-DOE
17-NOAA 18-OTHR STATE 19-OTHR CNTY 20-OTHR CITY 21-INTL
22-CITZ GROUP 23-ELECT. OFF 24-PRIV. CO 25-NEWS MEDIA 26-ARMY
27-NAVY 28-AIR FORCE 29-DEF LOG AGCY 30-NRC 31-ATSDR

Program Areas

_ Health Assessment _ Health Studies _ Tox Info-profile
_ Worker Health _ Petition Assessment _ Health Surveillnc
_ Tox Info-Nonprofile _ Admin _ Emergency Response
_ Disease Registry _ Subst-Spec Research _ Other (Technical Assist)
x Health Consultation _ Exposure Registry _ Health Education

Background and Statement of Issues:

The Region 2 U.S. Environmental Protection Agency (EPA) has requested that the Agency for Toxic Substances and Disease Registry (ATSDR) review analytical data from a fenced area at the Cornell-Dubilier Electronics Site in South Plainfield, New Jersey, and determine if polychlorinated biphenyls (PCBs) in soil are at levels of public health concern.

The fenced area, which covers 1.5 acres, is the location of a trnck

driving school. The school has reportedly been in operation since February 1996, 8 hours per day, 6 days per week. Tractor trailers maneuver in the fenced area, while instructors outside of the vehicles guide the drivers through their training. An office trailer, parking area, and 2 canopied rest areas with benches are in the fenced area. A barbecue is located near the office trailer.

Although the composition of the ground surface within the fenced area varies, it generally consists of a compacted mixture of soil, rock, and crushed brick. When weather conditions are dry, dust is airborue within the fenced area during truck maneuvers; this may result in significant exposure to PCB containing dust via inhalation, and may result in offsite migration of PCBs.

A number of surface soil and subsurface soil samples were collected from the fenced area and adjacent areas. Four surface soil (0 - 3 inches or 0 - 6 inches) were collected and analyzed for PCBs (exposure to soil contamination usually occurs in the top 3 to 6 inches, so subsurface soil analytical data are not evaluated for potential public health threats). Aroclor 1254 was detected at the following concentrations in surface soil samples.

Sampling Point	Concentration of Aroclor 1254 (mg/kg)
S23 (0 - 6 inches)	270
S25 (0 - 3 inches)	4,700
S24 (0 - 6 inches)	98
S29 (0 - 6 inches)	51,000

Discussion:

PCBs can be absorbed into the body via ingestion, inhalation, or dermal exposure following ingestion of dust or soil, inhalation of PCB laden dust, or direct dermal contact with PCBs in soil or dust.

In humans, long-term exposure to PCBs can affect the skin and liver: reproductive, endocrine, immunosuppressive, and carcinogenic effects have been observed in animal studies [1,2].

Based on an immunosuppressive effect seen in monkeys chronically exposed to PCBs, ATSDR has derived a chronic oral Minimal Risk Level (MRL) for PCBs of 2.0E-05 mg/kg/day; an MRL is defined as an estimate of daily human exposure to a dose of a chemical that is likely to be without an appreciable risk of adverse noncancerous effects over a specified duration of exposure.

Using standard default values (70 kg adult ingesting 50 milligrams of soil per day), an adult ingesting soil containing 51,000 ppm PCBs will receive a dose 3 orders of magnitude greater than the MRL. At a soil concentration of 4,700 mg/kg PCBs, the dose would exceed the MRL by 2 orders of magnitude. Additional exposure to PCBs by potential

inhalation of dust and dermal absorption would potentially increase the received dose.

Conclusions:

Based on review of the data, ATSDR concludes:

PCBs are present in surface soil in the fenced area at levels of public health concern.

PCBs may be migrating off-site during dry conditions when dust is generated during truck maneuvers.

The extent of PCB contamination in soil in the fenced area has not been adequately defined.

Recommendations:

1. Immediately stop exposure to PCBs in soil in the fenced area.
2. Prevent off-site migration of PCBs in dust or soil.
3. Characterize the extent of contamination in the fenced area.

If further clarification is required, or additional information becomes available, please do not hesitate to contact this office at 404/639-0616.

Steven Kinsler, Ph.D. Date: September 19, 1996

Concurrence: Date: 9-19-96

References

1. Toxicological Profile for Polychlorinated Biphenyls, U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry, April 1993.
2. ATSDR Case studies in Environmental Medicine, Polychlorinated Biphenyl Toxicity, U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, June 1990.

cc:
PERIS
Ed Skowronski, Acting Chief, EICB
Steven Kinsler, Toxicologist, CS
Steve Jones, Region 2 ATSDR Regional Representative

LOG #: 97-1004

ATSDR Record of Activity

ROUTING:
E. Skowronski
CS PILE

UID #: syk5 Date: 10-7-96 Time: _____ am _ pm _

Site Name: Cornell-Dubilier Electronics City: South Plainfield
Cnty: Middlesex State: NJ

CERCLIS #: _____ Cost Recovery #: 20GZ Region: 2

Site Status: (1) _ NPL x Non-NPL _ RCRA _ Non-Site specific _ Federal
(2) _ Emergency Response _ Remedial _ Removal _ Other:

Activities

_ Incoming Call	_ Public Meeting	_ Health Consult	_ Site Visit
_ Outgoing Call	_ Other Meeting	_ Health Referral	_ Info Provided
_ Conference Call	x Data Review	_ Written Response	_ Training
_ Incoming Mail	_ Other		

Requestor and Affiliation: (1) Nick Magriples
Phone: _____ Address: _____
City: _____ State: __ Zip Code: _____

Contacts and Affiliation

(31) Steve Jones _____ ( ) _____
(31) Arthur Block _____ ( ) _____

1-EPA	2-USCG	3-OTHER FED	4-STATE ENV	5-STATE HLT	6-COUNTY HLT
7-CITY HLTH	8-HOSPITAL	9-LAW ENFORCE	10-FIRE DEPT	11-POISON CTR	
12-PRIV CITZ	13-OTHER	14-UNKNOWN	15-DOD	16-DOE	
17-NOAA	18-OTHR STATE	19-OTHR CNTY	20-OTHR CITY	21-INTL	
22-CITZ GROUP	23-ELECT. OFF	24-PRIV. CO	25-NEWS MEDIA	26-ARMY	
27-NAVY	28-AIR FORCE	29-DEF LOG AGCY	30-NRC	31-ATSDR	

Program Areas

_ Health Assessment	_ Health Studies	_ Tox Info-profile
_ Worker Health	_ Petition Assessment	_ Health Surveillnc
_ Tox Info-Nonprofile	_ Admin	_ Emergency Response
_ Disease Registry	_ Subst-Spec Research	_ Other (Technical Assist)
x Health Consultation	_ Exposure Registry	_ Health Education

Background and Statement of Issues

The Region 2 U.S. Environmental Protection Agency (EPA) has requested that the Agency for Toxic Substances and Disease Registry (ATSDR) review analytical data from the Cornell-Dubilier Electronics Site in South Plainfield, New Jersey, and determine if contaminants in soil are at levels of public health concern [1].

The Cornell-Dubilier Electronics Site is located at 333 Hamilton Boulevard in South Plainfield, Middlesex County, New Jersey. The approximately 25 acre site is located in an industrial/commercial/residential area and is bordered by commercial businesses and residences on the south, west and north, and on the southeast, east, and northeast by an unnamed tributary to Bound Brook [2]. It is estimated that 540 persons reside within 0.25 miles of the site; the nearest residence is approximately 200 feet from the site [2].

During the 1950s, Cornell-Dubilier Electronics, Inc. manufactured electronic parts and components, and tested transformer oils. Discarded electronic components were landfilled onsite and transformer oils contaminated with PCBs were reportedly dumped directly onto site soils. The company vacated the site in the early 1960s [2].

The site is currently known as the Hamilton Industrial Park and is occupied by an estimated 15 commercial businesses. Numerous companies have operated at the site as tenants over the years [2]. A paved driveway is used to enter the park; the pavement ends within 100 yards of entering the park. It has been observed that vehicles entering the industrial park during dry conditions create airborue dust [2]. The driveway leads into a dirt/gravel/stone roadway that nearly encircles the business structures at the site. The roadway separates the structures from a heavily vegetated vacant field. Currently, there are no access restrictions at the site other than a 1.5 acre fenced area in the southeast portion of the vacant field that was formerly used by a truck driving school [2]. Analytical data of contaminants in soil in the fenced area were evaluated in a previous ATSDR Record of Activity (AROA) [3].

On June 27 and 29, 1996, the U.S. EPA Superfund Technical Assessment and Response Team (START) collected 2 soil samples from each of 23 locations at the site; a surface soil (0 - 3 inches) sample and a subsurface (greater than 3 inches) sample were collected from each location.

Twelve soil sampling locations were on the gravel part of the roadway, 7 locations were in the vacant field, 4 locations were on the footpath that runs north/south on the southeastern edge of the site. Because human exposure to contaminants in soil usually occurs in the top 0 to 3 inches of soil, this consultation will review analytical data from the surface soil samples only.

The soil samples were analyzed for Target Compound List Polychlorinated Biphenyls (TCL PCBs) and Target Analyte List (TAL) lead, cadmium, silver, chromium, and mercury [2]. Sample locations were selected to locate and identify potential sources of contamination at the site [2]. The EPA has requested that analytical results for polychlorinated biphenyls (PCBs), lead, and cadmium be evaluated for potential public health threats [1].

Analytical Results

Lead

Lead was detected in all surface soil samples collected from the roadway, vacant field, and footpath. Lead concentrations in the roadway samples ranged from 29 parts-per-million (ppm) to 340 ppm (average concentration = 167 ppm). Lead concentrations in the 5 vacant field samples with detectable levels of lead ranged from 66 ppm to 546 ppm (average concentration = 279 ppm), except for 2 samples (sample plus duplicate) collected at 1 location (S6/S26); lead concentrations in these 2 samples were 21,800 ppm and 22,500 ppm. Lead concentrations in the 4 footpath sanples were 29 ppm, 105 ppm, 543 ppm and 1,770 ppm. Exclusive of the 2 samples containing lead at 21,800 ppm and 22,500 ppm lead, only 1 sample of the remaining 21 samples contained lead at a concentration greater than 1,000 ppm (1,770 ppm).

Cadmium

Cadmium was detected in 11 of the 12 roadway samples at concentrations ranging from less than 1.0 ppm to 19.3 (average concentration = 3.0 ppm). Cadmium concentrations in the vacant field samples ranged from 1.1 ppm to 152 ppm (average concentration = 27.4 ppm). Cadmium was detected in 3 of the 4 footpath samples at concentrations ranging from 1.2 ppm to 51.4 ppm (average concentration = 18.9 ppm).

PCBs

PCBs were detected in all surface soil samples collected from the roadway, vacant field, and footpath. PCB concentrations in the roadway samples ranged from 8.0 ppm to 340 ppm (average concentration = 87.5 ppm). PCB concentrations in the vacant field samples ranged from 4.9 ppm to 100 ppm (average concentration = 42.4 ppm), except for one vacant field sample that contained PCBs at 3,000 ppm. PCB concentrations in the footpath samples ranged from 3.6 ppm to 90 ppm (average concentration = 36.5 ppm), except for one footpath sample that contained PCBs at 1,000 ppm.

Discussion

A limited sampling event was conducted at the Cornell-Dubilier site to locate and identify potential sources of contamination. Twenty-three sample locations were selected; this limited sampling is not an adequate characterization of the extent of contamination at the 25 acre site.

Because site access is not restricted and there are residences located nearby, it is anticipated that populations potentially exposed to contamination on-site will include on-site workers (adults) and trespassers from nearby residences (adults and children). It is not anticipated that infants and/or toddlers will frequently or regularly

access the site.

Lead

The Centers for Disease Control and Prevention (CDC) has indicated there is sufficient evidence that adverse health effects occur at blood lead levels at least as low as 10 micrograms per deciliter (ug/dL) in children [4]. Young children and fetuses are especially sensitive to the toxic properties of lead. Factors accounting for this susceptibility include the following: 1) the immaturity of the blood-brain barrier which allows entry of lead into the immature nervous system, 2) hand-to-mouth behavior and pica behavior (ingestion of nonfood items, such as soil) which leads to consumption of lead-contaminated media, 3) enhanced gastrointestinal absorption of lead (affected by the nutritional status of the child), 4) low body weight, and 5) the ready transfer of lead across the placenta to the developing fetus [4]. These factors put children exposed to lead at a much higher risk of developing adverse health effects than adolescents and adults.

Studies indicate that ingestion and inhalation of lead-contaminated media can contribute to elevated blood lead levels [4]. Blood lead levels in young children have been reported to be raised, on average, about 5 ug/dL for every 1,000 milligrams of lead per kilogram of soil or dust, and may increase 3 to 5 times higher than the mean response depending on play habits and mouthing behavior [4]. Blood lead levels of 10 ug/dL and above have been associated with adverse health effects such as developmental and hearing impairment, and reductions in intelligence quotient (IQ) in children [4,5].

The limited analytical data indicate that elevated lead levels in surface soil are not widespread across the site. One sample location (S6/S26) had very elevated levels of lead (greater than 21,000 ppm lead); however, the extent of the elevated lead levels in the area around this sample location has not been adequately characterized.

Cadmium

Cadmium was detected in most of the collected samples at average concentrations ranging from 3.0 ppm to 27.4 ppm. Exposure to cadmium may occur due to ingestion of contaminated soil or inhalation of cadmium-laden dust.

Chronic exposure to low levels of cadmium via ingestion may adversely affect the kidneys and skeletal system [6]. Inhalation of high levels of cadmium in air can damage the lungs, and chronic inhalation of low levels can cause kidney disease [6].

Based on kidney effects in humans chronically exposed to cadmium, ATSDR has derived a chronic oral Minimal Risk Level (MRL) of 7.0E-04 mg/kg/day; an MRL is defined as an estimate of daily human exposure to a dose of a chemical that is likely to be without an appreciable risk of adverse noncancerous effects over a specified duration of exposure.

Using standard default values (70 kg adult ingesting 50 milligrams of soil per day), an adult ingesting soil containing 27.4 ppm cadmium (maximum average concentration) will receive a dose approximately 1 order of magnitude less than the MRL. Assuming that young children (30 kg body weight) may trespass on the site and ingest soil (200 milligrams per day), a child ingesting soil that contains 27.4 ppm cadmium will receive a dose approximately 4 times less than the MRL.

PCBs

Elevated levels of PCBs were detected in surface soil samples collected at the site. Average concentrations of PCBs were 87.5 ppm, 42.4 ppm, and 36.5 ppm in the roadway, vacant field, and footpath surface soil samples, respectively.

PCBs can be absorbed into the body via ingestion, inhalation, or dermal exposure following ingestion of dust or soil, inhalation of PCB-laden dust, or direct dermal contact with PCBs in soil or dust. In humans, long-term exposure to PCBs can affect the skin and liver; reproductive, endocrine, immunosuppressive, and carcinogenic effects have been observed in animal studies [7,8]. PCBs have very low potential for producing acute toxic effects [8].

Based on an immunosuppressive effect seen in monkeys chronically exposed to PCBs, ATSDR has derived a chronic oral Minimal Risk Level (MRL) for PCBs of 2.0E-05 mg/kg/day; an MRL is defined as an estimate of daily human exposure to a dose of a chemical that is likely to be without an appreciable risk of adverse noncancerous effects over a specified duration of exposure.

Using standard default values (70 kg adult ingesting 50 milligrams of soil per day), an adult ingesting soil containing 36.5 ppm PCBs (lowest average concentration of the 3 areas sampled) will receive a dose approximately equivalent to the MRL. At a soil concentration of 3,000 ppm PCBs (maximum concentration detected in any surface soil sample), the dose would exceed the MRL by over 2 orders of magnitude.

Assuming that young children (30 kg body weight) may trespass on the site and ingest soil (200 milligrams per day), a child ingesting soil that contains 36.5 ppm PCBs will receive a dose approximately 1 order of magnitude greater than the MRL. At a soil concentration of 3,000 ppm PCBs, the dose would exceed the MRL by over 3 orders of magnitude. Additional exposure to PCBs by inhalation of PCB-laden dust and dermal absorption would potentially increase the received dose in both on-site workers and children that trespass.

Conclusions

Based on the limited analytical data collected at the Cornell-Dubilier Site, ATSDR concludes the following:

The limited sampling (23 sample locations for 25 acres) is not

adequate to completely characterize the extent of contamination at the site.

Lead concentrations that present a public health concern are not widespread across the site; lead concentrations in 1 area (sample location S6/S26) are at levels of public health concern.

The extent of lead contamination in the area of sample location S6/S26 has not been adequately defined.

Cadmium is not present in surface soil on-site at levels of public health concern.

PCBs are present at levels of public health concern in sampled areas at the site; chronic exposure to PCBs in surface soil presents a public health concern to on-site workers and trespassers.

Recommendations

Conduct additional sampling to adequately characterize the extent of contamination at the site.

Prevent exposure to PCBs in surface soil at levels of public health concern.

Prevent off-site migration of PCBs in dust or soil.

If further clarification is required or if additional information becomes available, please do not hesitate to contact this office at 404/639-0616.

Steven Kinsler, Ph.D. Date: October 30, 1996

Concurrence: Kenneth Orloff Date: 10/30/96

References

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cc:
PERIS
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APPENDIX D

DATE: JUN 1 1 1996

SUBJECT: Screening Level Ecological Risk Assessment for Cornel Dubilier

FROM: Shari Stevens, Environmental Scientist
Surveillance and Monitoring Branch (ESD-SMB)

TO: Nicholas Magriples, On-Scene Coordinator
Removal Action Branch (ERRD-RAB)

As you requested, we have reviewed the existing data for the Cornel Dubilier Electronics Incorporated site, located in South Plainfield, Middlesex County, New Jersey. We provide the following screening level ecological risk assessment for this site.

The Cornel Dubilier site is currently being addressed through the initial stages of the removal process, so extensive knowledge of the magnitude and extent of contamination is not available. Activities at the site included work with electrical transformer oils. It is believed that uncontrolled dumping of transformer oil and burial of tranformers contributed to the presence of contamination in site-related media, including Aroclor-1254. Analytical data contained in the "Site Inspection Prioritization Evaluation," prepared by Malcolm Pimie, Incorporated, and dated January 23, 1995, were used as the basis for this assessment. Cursory field observations were made by the USEPA (memorandum to file, dated May 21, 1996), but health and safety concems due to the undefined extent of contamination precluded extensive field work. Habitat associated with the site includes the developed and active terrestrial portion of the site proper, the narrow stream corridor adjacent to the site, and the stream, with associated wetlands and floodplains, upstream and downstream of the site.

Consideration of the potential for ecological risk at the site was divided into two components: the terrestrial risk associated with the developed portion of the site, and the aquatic risk associated with the adjacent stream. While contaminants appear to be significantly elevated on the developed portion of the site, effort was not expended to assess the terrestrial risk because it appears that the terrestrial areas on the site proper offer extremely limited habitat value and are actively used for ongoing human activities (i.e., primarily unvegetated areas used for parking and maneuvering of vehicles on a daily basis). However, it should be noted that there is still concem that these areas will continue to act as a source of contaminants to areas likely to contain ecological receptors (e.g., the stream). As no data are available for the ecologically valuable wetland and floodplain habitats associated with the stream, the results of the assessment of the stream will be viewed as representative of these adjacent, sensitive environments.

This initial review of the available data appears to indicate that there is the potential for ecological risk from PCBs, PAHs, and inorganics contained in stream sediments and surface waters. The potential for impacts directly to the benthic community and aquatic community is indicated by the screening results. Modeling of exposure of higher trophic level receptors to

contaminants through the food chain also indicates that there is a potential for impacts. It is recommended that additional activities be conducted to address the potential ecological risk associated with comamination of the stream adjacent to the site.

The initial step in this screening level ecological risk assessment was the comparison of the analytical results from the available sampling to appropriate ecological screening values for the stream media (Table 1). For sediments, Persaud's Ontario screening values were used, as they provide a relevant database for freshwater systems (D. Persaud, et al. August 1993. "Guidelines for the Protection and Management of Aquatic Sediment Quality in Ontario." Ontario Ministry of Environment and Energy.). Two measures of the magnitude of a potential effect were used from these screening values. The more conservative value used in this assessment is the Lowest Effect Level (LEL). A concentration higher than a LEL indicates that a contaminant has exceeded a concentration "that can be tolerated by the majority of benthic organisms" (Persaud, page 2). The less conservative value used is the Severe Effect Level (SEL), which is a concentration "...that would be detrimental to the inajority of benthic species" (Persaud, page 2). A concentration exceeding a SEL is of more concem as it indicates a greater magnitude of potential risk. Screening against the Ontario values indicates that Aroclor-1254, cadmium, copper, lead, manganese, benzo(g,h,i)perylene, chrysene, dibenz(a,h)anthracene, and indeho(1,2,3-cd)pyrene all exceed their respective SEL in the stream sediments. For the organic compounds, this screening assumes a conservative 1% total organic carbon content (TOC) in the sediments, as the organic SEL values are adjusted based on TOC to reflect the bioavailability of the contaminants. Of the sediment contaminants exceeding a SEL, Aroclor-1254 appears to be clearly site-related, while the inorganics and PAHs may be site-related. PAH and inorganic contaminants can be wide-spread in a developed watershed such as the one associated with the site. However, most of the contaminants exceeding SELs appear to also be associated with elevated concentrations in the site soil and, in the case of the PAHs, potentially associated with known site disposal practices (i.e., transformer oils).

The initial screening against the Ontario values indicates that contamination of stream sediments adjacent to, and apparently associated with, the site are present at levels that have been linked to adverse impacts to benthic organisms in other freshwater systems. Adverse impacts associated with the potential direct toxicity could include acute effects which may eliminate some or all species, or chronic effects which may reduce abundance or diversity of the benthic populations. If such a direct toxicity impact is occurring, it may result in a disruption of both the aquatic and terrestrial food chain, as these systems are closely linked in a stream of this size (e.g., emergent insects consumed by terrestrial insectivores, fish consumed by terrestrial piscivores, or invertebrates and amphibians consumed by terrestrial omnivores/camivores). An additional concem is that even if the contaminants are not directly toxic to the benthic organisms but do accumulate in their bodies, then impacts to benthic organisms may also result in adverse impacts to other ecological receptors. This may occur if the contaminant concentration gradient drops (e.g., moving away from the site), as there then may be an area of undefined proportions where the effects are not acutely toxic, but may cause chronic impacts and/or allow the contaminants to enter the food chain and threaten higher trophic level organisms (e.g., camivorous, piscivorous, or insectivorous wildlife). This is of particular concem due to the bioaccumulative properties of PCBs.

While the most elevated concentrations of contaminants in aquatic media appear to have been detected in the sediments, potentially site-related contaminants were also detected in the surface water of the stream adjacent to the site. The available analytical data for the surface water were screened against the USEPA's Ambient Water Quality Criteria (AWQC) for surface water (Federal Register/Vol. 57, No. 246/Tuesday, Dec. 22, 1992/Rules and Regulations, p. 60911; and as revised for specific metals by Federal Register/Vol. 60, No. 86/Thursday, May 4, 1995/Rules and Regulations, p. 22228). Aroclor-1254 and Aroclor-1248 were present at concentrations that exceed continuous (chronic) exposure values. Unfortunately, there are no acute AWQC values for PCBs to use for comparison. Concentrations also appear to exceed maximum (acute) exposure values for cadmium, copper, lead, and zinc. The acute values for the inorganics should be adjusted for water quality parameters (e.g., hardness) that were not included in the available data. Mercury was the only other inorganic surface water contaminant that appeared to be elevated, exceeding the AWQC chronic value.

This initial comparison of sediment and surface water contaminant levels to available screening values indicates that there is a potential for acute direct toxicity impacts to wildlife associated with the aquatic habitat. Due to potential for the inorganics to enter the food chain, there is also the concern that these contaminants may have the potential to impact higher trophic level receptors. The presence in the stream of herptiles and fish, and of mammalian and avian predators in the stream corridor (i.e., raccoon, great blue heron, Coopers hawk, and red-tailed hawk; see May 21, 1996, field observations) indicates that the exposure pathway from stream sediments to upper trophic level consumers appears to be complete. Therefore, the potential for site-related contaminants to impact higher trophic levels through the food chain was selected as the assessment endpoint.

Aroclor-1254, cadmium, copper, and lead were selected as the contaminants of concern (COCs) for the initial assessment of risk to higher trophic levels because all were detected at levels associated with potential acute effects in both sediment and surface water (where acute values were available). These contaminants are also known to be bioaccumulative (PCBs) or to be less readily regulated in the organism (cadmium, copper, lead). Zinc and the four PAHs were not assessed because, while they were also detected at concentrations associated with potential acute direct toxicity effects, they have a much lower potential for bioaccumulation due to the ability of organisms to regulate their concentration (zinc) or metabolize the contaminant (PAHs).

Raccoon prints were noted in stream sediments during the field visit. Raccoons would also be anticipated to use the habitat available in the stream corridor; they are an upper trophic level consumer that forages in the aquatic food chain, including consumption of crayfish, snails, reptiles/amphibians, and fish (Wildlife Exposure Factors Handbook (WEFH), EPA/600/R-93/187a, December 1993). Raccoons were selected to act as the surrogate receptor for mammals.

The substrate and banks throughout most of the stream corridor appear to offer appropriate habitat in which crayfish would be anticipated to occur. Additionally, crayfish have life cycles and foraging habits that tie them intimately to the stream sediments (i.e., aquatic life stages, sediment burrowing, consumes detritus and invertebrates associated with the sediment), indicating a high potential for significant exposure to and uptake of sediment contaminants. Crayfish were not observed in the stream during the field visit; however, they were not searched for due to sediment contaminant levels (i.e., health and safety concerns). Therefore, crayfish were selected as the surrogate for ail aquatic prey of the raccoon. The potential for contaminants from the stream sediments to impact the raccoon through the ingestion of crayfish was selected as the exposure route assessed.

Exposure of the raccoon was modeled in a conservative manner to exclude the possibility of prematurely dismissing the potential fpr risk to exist in the field. Additional data would be required to more precisely define the level of risk or to select an ecologically-based cleanup goal, if required. Conservative assumptions included the use of the crayfish ingestion to represent all aquatic forage in the raccoon diet, that all of the crayfish (aquatic forage) in the raccoon's diet were associated with the site sediments, that the crayfish existed in sediments with a concentration equal to the highest detected value for each contaminant, the use of lowest reported body weight for the adult raccoon, and the conservative estimate of crayfish bioaccumulation factors (BAFs). The following formula was used to estimate the exposure of the raccoon:

$$ED_{RCCN} = [(C_{SED} * BAF_{CRAY} * P_{CRAY} * IR_{RCCN}) + (C_{SED} * P_{SED} * IR_{RCCN})] * 1/BW_{RCCN}, \text{ where}$$

ED_{RCCN} is the exposure dose of the raccoon (mg COC / kg BW_{RCCN} / day),
C_{SED} is the concentration of the COC in the sediment (mg / kg),
BAF_{CRAY} is the bioaccumulation factor for the crayfish for the COC,
P_{CRAY} is the percent of the raccoon's diet consisting of crayfish (26 %; WEFH),
IR_{RCCN} is the daily intake rate of the raccoon (1.2644 kg / day; WEFH),
P_{SED} is the percent of the raccoon's diet consisting of crayfish (9.4 %; WEFH),
BW_{RCCN} is the body weight of the raccoon (3.67 kg; WEFH).

The formula was calculated for each of the COCs to obtain the ED, then each ED was compared to a benchmark dose for that COC. The toxicity data used in this screening level ERA were obtained from an ERA prepared by the U.S. Fish and Wildlife Service for a Federal Facility in New Jersey (USFWS. April 1996. "Environmental Contaminahts Impact Analysis and Ecological Risk Assessment for the Federal Aviation Administration Center CERCLA Sites in Atlantic County, New Jersey."). It was not possible to obtain the original references for the benchmark doses within the framework of this screening level ERA. Two of the benchmarks, those for cadmiuin and copper, were based on impacts to the liver. One of the consideration in the selection of these benchmark doses was that the potential mechanism of impacts froni PAHs, which were not assessed, would be expected to include the liver, where they are often metabolized in vertebrates. The benchmark dose selected for cadmium was the lowest value from a range of experimental exposure dose concentrations reported as causing liver necrosis in rats (1.6 mg / kg BW / day). The benchmark for copper was selected from an experimental exposure

dose (as copper sulfate) that resulted in hepatic inflammation and forestomach hyperplasia in rats (28 mg / kg BW / day). The other two benchmarks doses, for Aroclor-1254 and lead, were based on impacts to reproduction and population. The benchmark dose for Aroclor-1254 was based on an experimental exposure dose that caused reproductive failure in ferrets (4.8 mg / kg BW / day). The benchmark dose for lead was based on an estimated exposure dose in the field that was believed to be responsible for reduced populations of otters (2 mg / kg BW / day).

Specific BAFs for estimating crayfish tissue concentrations from sediment concentrations for the COCs could not be located. The BAFs used for the crayfish were calculated from sediment contaminant and invertebrate tissue residue data contained in the previously referenced USFWS ERA and a study from a site on the Raritan River (Normandeau Associates. February 1996. "Biota Monitoring Study Kin-Buc Landfill Operable Unit 2 1995."). On the one hand, the calculations can be advantageous over laboratory data because the BAFs obtained are based on field observations rather than laboratory investigations, thereby potentially decreasing the uncertainty. On the other hand, this may increase the uncertainty to some extent because the calculations use different species than the crayfish, with potentially different lipid contents, foraging techniques, habitats, etc., and the comparability of the TOC and grain size data between the site and study sediments is unknown. For Aroclor-1254, data from analysis of sediment and fiddler crab tissue for Aroclor-1248 were used to calculate the BAF of 2.931 (a mean of tissue/sediment ratios from 17 stations). For cadmium, a BAF of 0.117 was calculated from caddisfly larva tissue and sediment data from a single station. Calculations for copper used data from seven stations for dragonfly larva tissue and sediments, resuhing in a BAF of 0.913. For lead, caddisfly larva results were again used to calculate a BAF of 0.061 based on five stations.

The Hazard Quotient (HQ) for for each COC was calculated by dividing the ED by the benchmark dose. If the ED divided by an appropriately conservative benchmark dose yields a HQ less than 1, then little or no potential for ecological risk should exist. If the HQ is greater than 1, then there is a potential for ecological risk. The HQs were also summed to generate a Hazard Index (HI) to assess the potential for cumulative risk from all of the COCs assessed, which may or may not individually generate risk (i.e., have a HQ greater than 1). Aroclor-1254 and lead each generated a HQ greater than 1, while cadmium and copper did not (Table 2). In agreement with the process in the ecological risk assessment document recommended by the Region II BTAG, the review draft "Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments" (U.S. Environmental Protection Agency, Environmental Response Team, Edison, NJ, September 26, 1994, Review Draft), the next step in the assessment of ecological risk should be to conduct site specific investigations to confirm whether or not impacts are occurring in the field, and to define the extent and significance of ecological impacts. Therefore, the appropriate conclusion for a screening level assessment of ecological risk such as this is that there is not adequate information at this stage to eliminate the potential for ecological risk. Further investigations should be conducted to adequately assess ecological risks associated with this site.

The nature of a screening level ERA and the limited data available for this site precludes definitive conclusions regarding the significance of any effects that may actually be occurring in the field. However, the uncertainties can be clarified so that any risk management decisions that must be made can be as informed as possible. The following are, first, factors which may decrease the uncertainty or increase the potential that significant ecological effects may be occurring in the field and, second, factors which are common to screening level assessments that may increase the uncertainty.

While neither cadmium nor copper generate a HQ greater than 1, these two COCs do generate a HI greater than 1 when summed. This is of concern because, as previously noted, the mechanism of both benchmark doses involves liver effects. The impact of cadmium and copper together may still potentially generate risk, especially when qualitatively considered along with the potential for liver effects from the PAHs, which were not assessed. This also points out that only Aroclor-1254, cadmium, copper, and lead were assessed for potential impacts to higher trophic level organisms, while other site-related contaminants may contribute to the overall risk to ecological receptors in the field. Each comparison of a maximum stream sediment concentration to an Ontario value indicated that the concentration exceeded the LEL. Although this may potentially indicate watershed contamination rather than site-related contamination, it does indicate that the aquatic system is probably under stress, regardless of the source, and may therefore be more susceptible to significant ecological effects that may be associated with the site. Finally, it is typically recommended that the benchmark doses be based on no observable adverse effect levels (NOAELs), or at least lowest observable adverse effect levels (LOAELs), to be appropriately conservative to support the dismissal of the potential for risk if a HQ of less than 1 is calculated. As this screening level ERA was being prepared as part of a removal investigation, less conservative benchmarks were used and, where possible, shorter term exposures were selected. This should indicate that if potential ecological risk is found in the assessment, then there may be a higher probability that effects are actually occurring in the field. It may also mean a higher probability that any effects that are occurring in the field may be significantly adverse effects. The use of the less conservative benchmark was intended to reduce the uncertainty of the ERA. This was done to facilitate supporting risk management decisions associated with potential removal actions; decisions that often must be made even if conducting extensive field investigations and confirmatory studies is not feasible.

The AWQC for surface water can be influenced by site-specific parameters. Hardness and pH are examples of parameters that can influence the bioavailability and/or toxicity of contaminants in the surface water. These parameters were not available for use in this assessment, so the comparison to the AWQC may actually include more or fewer exceeded values. Grain size distribution, total organic carbon content, reduction-oxidation potential, pH, and other factors can influence the bioavailability and/or toxicity of contaminants in the sediment. Without these parameters, the actual availability of the sediment contaminants to biological receptors is unknown, regardless of the indications of screening values. The examination of the food chain evaluated only raccoon consumption of a single prey item (i.e., crayfish) assumed to be obtained exclusively from a maximally contaminated area, which would not be likely in the field. While the percent aquatic forage consumed in the raccoon diet was adjusted for average foraging habits, the prey items

consumed would not to be likely to all originate adjacent to the site in the area of highest contamination. The food chain model assumed that the benchmarks that had been derived for other mammalian species can be applied directly to the raccoon. The toxic effect of these contaminants may be either more or less than these benchmarks. As previously noted, the BAFs were calculated from different invertebrates with potentially different foraging techniques and habitats. This could combine with the differences in the physical parameters between this site and the sites from which the BAFs were calculated to increase or reduce the BAFs. All of these factors contribute to the uncertainty of this assessment of ecological risk; however, it should be noted that these uncertainties influence the results in both directions (i.e., more and less conservative).

The habitat value of the aquatic, wetland, and floodplain habitat immediately adjacent to the site does not appear to be high based on the preliminary, cursory field investigation (i.e., heavily developed, steep and high banks, no significant floodplain or wetlands). However, what appear to be very diverse and valuable habitat exist just upstream and downstream of the site in the form of forested and emergent wetland, floodplain, old field and meadow, and undeveloped watershed in an otherwise heavily developed region. This physical arrangement could potentially have the affect of attracting ecological receptors into the areas of higher quality habitat, then exposing them to the contamination through either the use of the stream adjacent to the site as a migration corridor or the transport of contaminants from adjacent to site to downstream habitats. Based on this potential and the results of this screening level ERA, it is our recommendation that additional activities be conducted to address the contamination of the stream sediments. If additional ecological investigations cannot be performed, then due to the relatively lower value of the habitat adjacent to the site and the potential for highly toxic and/or bioaccumulative contaminants to be transported off of the site, it may be appropriate for the areas of highest stream sediment contamination (hot spots) to be removed. Any such action may serve to reduce the potential ecological risk and serve to protect the environment.

We hope these comments have been helpful. The BTAG and/or ESD is interested in reviewing any future documents pertaining to this site. If you have any questions, comments, or require further information, please contact Christopher Stitt at (908) 321-6676.

Attachments

E 1. CORNELL DUBILIER ELECTRONICS : MEDIA CONTAMINANT CONCENTRATIONS

	JAN. 1995 SIP max sed. - ppm	LEL ppm	SEL ppm	JAN. 1995 SIP max SW - ppb	EPA chronic	AWQC acute	(unfiltered)
antimony	6.1						
arsenic	24.2	6.0	33.0	15.6	190.0	360.0	
cadmium	24.8	0.6	10.0	14.5	1.1	3.9	
chromium	56.6	26.0	110.0	25.7	210.0	1,700.0	(as III)
copper	219.0	16.0	110.0	89.6	12.0	18.0	
iron	31,400.0	20%	40%	19,600.0			
lead	552.0	31.0	250.0	180.0	3.2	82.0	
manganese	1,810.0	460.0	1,100.0	1,380.0			
mercury	0.77	0.2	2.0	0.23	0.012	2.4	
nickel	52.4	16.0	75.0	40.8	160.0	1,400.0	
silver	6.9			3.8		4.1	
zinc	798.0	120.0	820.0	994.0	110.0	120.0	
	ppb	ppb	ppb				
			@1%TOC				
1,2-dichloroethylene	51.0			100.0			
trichloroethylene	120.0			2.0			
vinyl chloride				3.0			
acenaphthylene	220.0						
acenapthene	830.0						
anthracene	830.0	220.0	3,700.0				
t[illegible]p(a)anthracene	4,000.0	320.0	14,800.0	1.0			
[illegible](a)pyrene	5,900.0	370.0	14,400.0				
b[illegible].o(b)fluoranthene	8,200.0			2.0			
benzo(g,h,i)perylene	4,500.0	170.0	3,200.0				
benzo(k)fluoranthene	4,600.0	240.0	13,400.0	0.6			
bis(2-ethylhexyl)phthalate	54,000.0						
butylbenzylphthalate	8,100.0			3.0			
carbazole	650.0						
chrysene	6,100.0	340.0	4,600.0	2.0			
dibenz(a,h)anthracene	1,200.0	60.0	1,300.0				
dibenzofuran	380.0						
di-n-butylphthalate	280			0.2			
di-n-octylphthalate	7,600.0						
fluoranthene	7,700.0	750.0	10,200.0	2.0			
fluorene	540.0	190.0	1,600.0		(shading indicates a SEL or an		
indeno(1,2,3-cd)pyrene	7,000.0	200.0	3,200.0		acute AWQC was exceeded)		
2-methylnaphthalene	450.0						
phenanthrene	4,000.0	560.0	9,500.0	1.0			
pyrene	6,000.0	490.0	8,500.0	2.0			
1,2,4-trichlorobenzene	5,400.0						
Aroclor-1248				24.0	0.014		
Aroclor-1254	550,000.0	60.0	340.0	20.0	0.014		

TABLE 2. CORNEL DUBILIER ELECTRONICS : RISK CALCULATIONS FOR THE RACCOON

MAXIMUM Sediment Concentration

COC	ediment Cone. (Csed)	Crayfish BAF (BAFcray)	% Crayfish (Pcray)	% Sediment (Psed)	Ingest. Rate (IRrccn)	Body Weight (BWrccn)	DOSE (ED)	Benchmark Dose	HQ
	mg/kg				kg/day	kg	mg/kgSW/day	mg/kgBW/day	
Aroclor-1254	550.00	2.931	0.26	0.094	1.2644	3.67	162.21	4.80	33.7
cadmium	24.80	0.117	0.26	0.094	1.2644	3.67	1.06	1.60	0.6
copper	219.00	0.913	0.26	0.094	1.2644	3.67	25.00	28.00	0.8
lead	552.00	0.061	0.26	0.094	1.2644	3.67	20.89	2.00	10.4
								TOTAL HI	45.8

SEDIMENT CALCULATION: ((Csed*BAFcray*Pcray*IRrccn)+(Csed*Psed*IRrccn)]*1/BWrccn=ED